

01997001800.ST25
SEQUENCE LISTING

<110> Liu, Wei
Ozenberger, Bradley A.
Wu, Leeyang
Lo, Ching-Hsiung Frederick
Haney, Steven A.
Sookdeo, Hemchand
Lee, Jee Hyung

<120> NOVEL BRAIN-LOCALIZED PROTEIN KINASES HOMOLOGOUS TO
HOMEODOMAIN-INTERACTING PROTEIN KINASES

<130> 01997.001800

<150> US 60/456,958

<151> 2003-03-25

<150> US 60/491,251

<151> 2003-07-31

<160> 191

<170> PatentIn version 3.2

<210> 1

<211> 1851

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(1848)

<400> 1

atg	tcc	acc	atc	cag	tcg	gag	act	gac	tgc	tac	gac	atc	atc	gag	gtc	48
Met	Ser	Thr	Ile	Gln	Ser	Glu	Thr	Asp	Cys	Tyr	Asp	Ile	Ile	Glu	Val	
1				5					10					15		

ttg	ggc	aag	ggg	acc	ttc	ggg	gag	gta	gcc	aag	ggc	tgg	cgg	cgg	agc	96
Leu	Gly	Lys	Gly	Thr	Phe	Gly	Glu	Val	Ala	Lys	Gly	Trp	Arg	Arg	Ser	
			20					25					30			

acg	ggc	gag	atg	gtg	gcc	atc	aag	atc	ctc	aag	aat	gac	gcc	tac	cgc	144
Thr	Gly	Glu	Met	Val	Ala	Ile	Lys	Ile	Leu	Lys	Asn	Asp	Ala	Tyr	Arg	
		35					40					45				

aac	cgc	atc	atc	aag	aac	gag	ctg	aag	ctg	ctg	cac	tgc	atg	cga	ggc	192
Asn	Arg	Ile	Ile	Lys	Asn	Glu	Leu	Lys	Leu	Leu	His	Cys	Met	Arg	Gly	
	50					55					60					

cta	gac	cct	gaa	gag	gcc	cac	gtc	atc	cgc	ttc	ctt	gag	ttc	ttc	cat	240
Leu	Asp	Pro	Glu	Glu	Ala	His	Val	Ile	Arg	Phe	Leu	Glu	Phe	Phe	His	
65					70				75						80	

gac	gcc	ctc	aag	ttc	tac	ctg	gtc	ttt	gag	ctg	ctg	gag	caa	aac	ctt	288
Asp	Ala	Leu	Lys	Phe	Tyr	Leu	Val	Phe	Glu	Leu	Leu	Glu	Gln	Asn	Leu	
				85					90					95		

ttc	gag	ttc	cag	aag	gag	aac	aac	ttc	gag	ccc	ctc	ccc	gcc	cgc	cac	336
Phe	Glu	Phe	Gln	Lys	Glu	Asn	Asn	Phe	Ala	Pro	Leu	Pro	Ala	Arg	His	
			100					105					110			

01997001800.ST25

atc Ile	cgt Arg	aca Thr 115	gtc Val	acc Thr	ctg Leu	cag Gln	gtg Val 120	ctc Leu	aca Thr	gcc Ala	ctg Leu	gcc Ala 125	cgg Arg	ctc Leu	aag Lys	384
gag Glu 130	ctg Leu	gct Ala	atc Ile	atc Ile	cac His	gct Ala 135	gat Asp	ctc Leu	aag Lys	cct Pro	gag Glu 140	aac Asn	atc Ile	atg Met	ctg Leu	432
gtg Val 145	gac Asp	cag Gln	acc Thr	cgc Arg	tgc Cys 150	ccc Pro	ttc Phe	agg Arg	gtc Val	aag Lys 155	gtg Val	att Ile	gac Asp	ttc Phe	gga Gly 160	480
tcc Ser	gcc Ala	agc Ser	att Ile	ttc Phe 165	agc Ser	gag Glu	gtg Val	cgc Arg	tac Tyr 170	gtg Val	aag Lys	gag Glu	cca Pro	tac Tyr 175	atc Ile	528
cag Gln	tcg Ser	cgc Arg	ttc Phe 180	tac Tyr	cgg Arg	gcc Ala	cct Pro	gag Glu 185	atc Ile	ctg Leu	ctg Leu	ggg Gly 190	ctg Leu	ccc Pro	ttc Phe	576
tgc Cys	gag Glu	aag Lys 195	gtg Val	gac Asp	gtg Val	tgg Trp	tcc Ser 200	ctg Leu	ggc Gly	tgc Cys	gtc Val	atg Met 205	gct Ala	gag Glu	ctg Leu	624
cac His 210	ctg Leu	ggc Gly	tgg Trp	cct Pro	ctc Leu	tac Tyr 215	ccc Pro	ggc Gly	aac Asn	aac Asn	gag Glu 220	tac Tyr	gac Asp	cag Gln	gtg Val	672
cgc Arg 225	tac Tyr	atc Ile	tgc Cys	gaa Glu	acc Thr 230	cag Gln	ggc Gly	ctg Leu	ccc Pro	aag Lys 235	cca Pro	cac His	ctg Leu	ttg Leu	cac His 240	720
gcc Ala	gcc Ala	tgc Cys	aag Lys	gcc Ala 245	cac His	cac His	ttc Phe	ttc Phe	aag Lys 250	cgc Arg	aac Asn	ccc Pro	cac His	cct Pro 255	gac Asp	768
gct Ala	gcc Ala	aac Asn	ccc Pro 260	tgg Trp	cag Gln	ctc Leu	aag Lys	tcc Ser 265	tcg Ser	gct Ala	gac Asp	tac Tyr	ctg Leu 270	gcc Ala	gag Glu	816
acg Thr	aag Lys	gtg Val 275	cgc Arg	cca Pro	ttg Leu	gag Glu	cgc Arg 280	cgc Arg	aag Lys	tat Tyr	atg Met	ctc Leu 285	aag Lys	tcg Ser	ttg Leu	864
gac Asp 290	cag Gln	att Ile	gag Glu	aca Thr	gtg Val	aat Asn 295	ggt Gly	ggc Gly	agt Ser	gtg Val	gcc Ala 300	agt Ser	cgg Arg	cta Leu	acc Thr	912
ttc Phe 305	cct Pro	gac Asp	cgg Arg	gag Glu	gcg Ala 310	ctg Leu	gcg Ala	gag Glu	cac His	gcc Ala 315	gac Asp	ctc Leu	aag Lys	agc Ser	atg Met 320	960
gtg Val	gag Glu	ctg Leu	atc Ile	aag Lys 325	cgc Arg	atg Met	ctg Leu	acc Thr	tgg Trp 330	gag Glu	tca Ser	cac His	gaa Glu	cgc Arg 335	atc Ile	1008
agc Ser	ccc Pro	agt Ser	gct Ala 340	gcc Ala	ctg Leu	cgc Arg	cac His	ccc Pro 345	ttc Phe	gtg Val	tcc Ser	atg Met	cag Gln 350	cag Gln	ctg Leu	1056
cgc Arg	agt Ser	gcc Ala	cac His	gag Glu	acc Thr	acc Thr	cac His	tac Tyr	tac Tyr	cag Gln	ctc Leu	tcg Ser	ctg Leu	cgc Arg	agc Ser	1104

01997001800.ST25

355	360	365	
tac Tyr	cgc Arg	ctc Leu	tcg Ser
ctg Leu	caa Gln	gtg Val	gag Glu
ggg Gly	aag Lys	ccc Pro	ccc Pro
acg Thr	ccc Pro	gtc Val	gtg Val
1152			
gcc Ala	gca Ala	gaa Glu	gat Asp
ggg Gly	acc Thr	ccc Pro	tac Tyr
tac Tyr	tgt Cys	ctg Leu	gct Ala
gag Glu	gag Glu	aag Lys	gag Glu
1200			
gct Ala	gcg Ala	ggt Gly	atg Met
ggc Gly	agt Ser	gtg Val	gcc Ala
ggc Gly	agc Ser	agc Ser	ccc Pro
ttc Phe	ttc Phe	cga Arg	gag Glu
1248			
gag Glu	aag Lys	gca Ala	cca Pro
ggt Gly	atg Met	caa Gln	aga Arg
gcc Ala	atc Ile	gac Asp	cag Gln
ctg Leu	gat Asp	gac Asp	ctg Leu
1296			
agt Ser	ctg Leu	cag Gln	gag Glu
gct Ala	ggg Gly	cat His	ggg Gly
ctg Leu	tgg Trp	ggt Gly	gag Glu
acc Thr	tgc Cys	acc Thr	aat Asn
1344			
gcg Ala	gtc Val	tcc Ser	gac Asp
atg Met	atg Met	gtc Val	ccc Pro
ctc Leu	aag Lys	gca Ala	gcc Ala
atc Ile	act Thr	ggc Gly	cac His
1392			
cat His	gtg Val	ccc Pro	gac Asp
tcg Ser	ggc Gly	cct Pro	gag Glu
ccc Pro	atc Ile	ctg Leu	gcc Ala
ttc Phe	tac Tyr	agc Ser	agc Ser
1440			
cgc Arg	ctg Leu	gca Ala	ggc Gly
cgc Arg	aag Lys	cca Pro	cct Pro
gcg Ala	ggt Gly	tcc Ser	aag Lys
1488			
tcc Ser	gac Asp	tcc Ser	aac Asn
ttc Phe	agc Ser	aac Asn	ctc Leu
att Ile	cgg Arg	ctg Leu	agc Ser
agg Ser	agg Ser	tgg Trp	gag Glu
gaa Glu	gga Gly	gag Glu	cat His
1584			
ctc Leu	ggg Gly	gcc Ala	tct Ser
gct Ala	gag Glu	cca Pro	ctg Leu
gcc Ala	atc Ile	ctg Leu	cag Gln
cga Arg	gat Asp	gag Glu	gat Asp
1632			
ggg Gly	ccc Pro	aac Asn	att Ile
gac Asp	aac Asn	atg Met	acc Thr
atg Met	gaa Glu	gct Ala	gag Glu
agg Arg	cca Pro	gac Asp	cct Pro
1680			
gag Glu	ctc Leu	ttc Phe	gac Asp
ccc Pro	agc Ser	agc Ser	tgt Cys
cct Pro	gga Gly	gaa Glu	tgg Trp
ctg Leu	agt Ser	gag Glu	cca Pro
1728			
gac Asp	tgc Cys	acc Thr	ctg Leu
gag Glu	agc Ser	gtc Val	agg Arg
ggc Gly	cca Pro	cgg Arg	gct Ala
cag Gln	ggg Gly	ctc Leu	cca Pro
1776			
ccc Pro	cgc Arg	cgc Arg	tcc Ser
cac His	cag Gln	cat His	ggg Gly
cca Pro	ccc Pro	cgg Arg	ggg Gly
gcc Ala	acc Thr	agc Ser	ttc Phe
1824			
ctc Leu	acc Gln	ggg Gly	cac Gln
cac Gln	cac Gln	tga	
1851			

01997001800.ST25

Leu Gln His Val Thr Gly His His
610 615

<210> 2
<211> 616
<212> PRT
<213> Homo sapiens

<400> 2

Met Ser Thr Ile Gln Ser Glu Thr Asp Cys Tyr Asp Ile Ile Glu Val
1 5 10 15

Leu Gly Lys Gly Thr Phe Gly Glu Val Ala Lys Gly Trp Arg Arg Ser
20 25 30

Thr Gly Glu Met Val Ala Ile Lys Ile Leu Lys Asn Asp Ala Tyr Arg
35 40 45

Asn Arg Ile Ile Lys Asn Glu Leu Lys Leu Leu His Cys Met Arg Gly
50 55 60

Leu Asp Pro Glu Glu Ala His Val Ile Arg Phe Leu Glu Phe Phe His
65 70 75 80

Asp Ala Leu Lys Phe Tyr Leu Val Phe Glu Leu Leu Glu Gln Asn Leu
85 90 95

Phe Glu Phe Gln Lys Glu Asn Asn Phe Ala Pro Leu Pro Ala Arg His
100 105 110

Ile Arg Thr Val Thr Leu Gln Val Leu Thr Ala Leu Ala Arg Leu Lys
115 120 125

Glu Leu Ala Ile Ile His Ala Asp Leu Lys Pro Glu Asn Ile Met Leu
130 135 140

Val Asp Gln Thr Arg Cys Pro Phe Arg Val Lys Val Ile Asp Phe Gly
145 150 155 160

Ser Ala Ser Ile Phe Ser Glu Val Arg Tyr Val Lys Glu Pro Tyr Ile
165 170 175

Gln Ser Arg Phe Tyr Arg Ala Pro Glu Ile Leu Leu Gly Leu Pro Phe
180 185 190

Cys Glu Lys Val Asp Val Trp Ser Leu Gly Cys Val Met Ala Glu Leu
195 200 205

01997001800.ST25

His Leu Gly Trp Pro Leu Tyr Pro Gly Asn Asn Glu Tyr Asp Gln Val
210 215 220

Arg Tyr Ile Cys Glu Thr Gln Gly Leu Pro Lys Pro His Leu Leu His
225 230 235 240

Ala Ala Cys Lys Ala His His Phe Phe Lys Arg Asn Pro His Pro Asp
245 250 255

Ala Ala Asn Pro Trp Gln Leu Lys Ser Ser Ala Asp Tyr Leu Ala Glu
260 265 270

Thr Lys Val Arg Pro Leu Glu Arg Arg Lys Tyr Met Leu Lys Ser Leu
275 280 285

Asp Gln Ile Glu Thr Val Asn Gly Gly Ser Val Ala Ser Arg Leu Thr
290 295 300

Phe Pro Asp Arg Glu Ala Leu Ala Glu His Ala Asp Leu Lys Ser Met
305 310 315 320

Val Glu Leu Ile Lys Arg Met Leu Thr Trp Glu Ser His Glu Arg Ile
325 330 335

Ser Pro Ser Ala Ala Leu Arg His Pro Phe Val Ser Met Gln Gln Leu
340 345 350

Arg Ser Ala His Glu Thr Thr His Tyr Tyr Gln Leu Ser Leu Arg Ser
355 360 365

Tyr Arg Leu Ser Leu Gln Val Glu Gly Lys Pro Pro Thr Pro Val Val
370 375 380

Ala Ala Glu Asp Gly Thr Pro Tyr Tyr Cys Leu Ala Glu Glu Lys Glu
385 390 395 400

Ala Ala Gly Met Gly Ser Val Ala Gly Ser Ser Pro Phe Phe Arg Glu
405 410 415

Glu Lys Ala Pro Gly Met Gln Arg Ala Ile Asp Gln Leu Asp Asp Leu
420 425 430

Ser Leu Gln Glu Ala Gly His Gly Leu Trp Gly Glu Thr Cys Thr Asn
435 440 445

Ala Val Ser Asp Met Met Val Pro Leu Lys Ala Ala Ile Thr Gly His
450 455 460

01997001800.ST25

His Val Pro Asp Ser Gly Pro Glu Pro Ile Leu Ala Phe Tyr Ser Ser
465 470 475 480

Arg Leu Ala Gly Arg His Lys Ala Arg Lys Pro Pro Ala Gly Ser Lys
485 490 495

Ser Asp Ser Asn Phe Ser Asn Leu Ile Arg Leu Ser Gln Val Ser Pro
500 505 510

Glu Asp Asp Arg Pro Cys Arg Gly Ser Ser Trp Glu Glu Gly Glu His
515 520 525

Leu Gly Ala Ser Ala Glu Pro Leu Ala Ile Leu Gln Arg Asp Glu Asp
530 535 540

Gly Pro Asn Ile Asp Asn Met Thr Met Glu Ala Glu Arg Pro Asp Pro
545 550 555 560

Glu Leu Phe Asp Pro Ser Ser Cys Pro Gly Glu Trp Leu Ser Glu Pro
565 570 575

Asp Cys Thr Leu Glu Ser Val Arg Gly Pro Arg Ala Gln Gly Leu Pro
580 585 590

Pro Arg Arg Ser His Gln His Gly Pro Pro Arg Gly Ala Thr Ser Phe
595 600 605

Leu Gln His Val Thr Gly His His
610 615

<210> 3
<211> 14317
<212> DNA
<213> Homo sapiens

<400> 3
gagttgaggt tttgtcatgt tggcaaggct ggtctcaaac tcctgacctc aggtgatccg 60
cccaccttgg cctctcaaag tgctgggatt acaggcgtaa gccaccactc ctggccaggc 120
actttaaaaa cttctttgtg ctttgatttt ctcttccata aaatccctac tttgtatggt 180
gtaaggatca gataagactt ctaaagaact tcatccttgt ttaaatgttt tgatgttaca 240
ttttctttta cttttttttt tttttttgag acggagtttc actcttggtg cccaggctgg 300
agtgcaatgg cgcaatcttg gtcactgca accccacctc ccgcgttcaa gcagttctca 360
tacctcagcc tgccgacctc agcctcttga gtagctggga ctacaggcat gtgctaacac 420
acccggctaa ttttgtattt ttagtagaga cggggtttct ccatgttggt caggctggtc 480

01997001800.ST25

tcgaactccc	gacctcaggt	gatccacctg	cctcagcctc	ccaaagtgct	gggattacag	540
gcatgagcca	ccgagccccg	cccgcgtgta	aatattctaa	tctggctgga	gtggtggctc	600
atgtctacaa	tcccagcact	ttggaagggt	gaggcaggag	gatcacttga	ggccaggagg	660
atcacttgag	accagcctgg	acaacatagt	gagaccccat	ttctacaaaa	aattaaaaag	720
ataaataaaa	atgaacactt	tttttttttt	tttgagatgg	agtctcgctc	tgtcacccag	780
gctggagtgc	agtgggtgca	tctcggtcca	ctgcaacctc	cacctcccg	gttcaagcta	840
ttcttctgcc	ttagcctccc	gagtagctgg	gactacaggc	gccctccact	atgcctggct	900
aatttttagt	attttttagta	gagacagagt	ttcaccgtgt	tagccaggat	ggctctgatc	960
tcctgacctt	atgatctgcc	ttccttggcc	tcccaaagtg	ctgggattac	aggcgtgacc	1020
caccgcaccc	agccaaaaat	aaatacatTT	tctaatttgg	cctcaacatc	tcccccaagc	1080
tgcttcttat	ccatgtccat	ttctcgggga	ctgccccctc	atcccagagc	cctaggcccc	1140
ttcttagaca	gctcccgctt	ttccctcaaa	ccgtcgggtc	cacggctgct	tctcctggcc	1200
ttttgagtgt	ctcatccatt	ggcctcgccc	tctcctcccc	aacctctccc	atctgtgccc	1260
tgtcctggac	tctttccctg	gcttggggct	tccactctta	cccgcctcaa	cctatccctt	1320
ttcatacagt	aactttctga	cactcatatc	tgaccctgcc	ctccccctgt	caaagccctt	1380
ctgtggctcc	ccagtgcctt	cagaacagaa	tccaaactcc	ttagcctggc	attcagggcc	1440
ttttacaacc	tcaccccaca	gtagccacag	actgggacag	gagttttctg	aacacagaca	1500
cacacacatc	acatctccca	agctcaagaa	gccacacctt	cctcactcct	gccttatccc	1560
cattcctgta	tgcccaaggc	ccacgattag	acccccctct	gtcaaacactt	cacctgtttg	1620
gtctttgcaa	gattccgcca	ctgggcgggg	gagggggccc	agcctggtac	cccaccccca	1680
ctccagccag	ggctcaggtc	tccaacaaca	gaaccagagc	cactcaacag	cgctggaacc	1740
cattcggtgg	ggcctggggc	ccctcatccc	aagccaggag	ggtttctggg	gaggggtgca	1800
gcccttgga	gactgacagt	gtggcctggg	ggtttggggg	tgccagggaa	gcaggggcca	1860
acctcatagg	aggagacacg	agtgcggttc	tctttccccc	actggggggc	ctgctgtgtc	1920
agcagccagg	cgggaggcct	gggcggcaga	gccagtggta	caggggcctg	ggcagggcgg	1980
tgtctggcag	cagcggcacc	atgtccacca	tccagtcgga	gactgactgc	tacgacatca	2040
tcgaggtctt	gggcaagggg	accttcgggg	aggtagccaa	gggctggcgg	cggagcacgg	2100
gcgagatggt	ggccatcaag	atcctcaaga	atgacgccta	ccgcaaccgc	atcatcaaga	2160
acgagctgaa	gctgctgcac	tgcatgagag	gcctagaccc	tgaagaggcc	cacgtcatcc	2220
gcttccttga	gttcttccat	gacgccctca	agttctacct	ggcttttgag	ctgctggagc	2280
aaaacctttt	cgagttccag	aaggagaaca	acttcgcgcc	cctccccgcc	cgccacatcc	2340
gtacagtcac	cctgcaggtg	ctcacagccc	tggcccggtc	caaggagctg	gctatcatcc	2400

01997001800.ST25

acgctgatct	caagcctgag	aacatcatgc	tggtggacca	gacccgctgc	cccttcaggg	2460
tcaaggtgag	taggggtcgt	ctaggggtggc	tgcgcccta	gttccttgtc	tttttcccag	2520
cttcttccag	ccctagatct	tttttttaaat	tttttaaaat	tattattatt	attatttttg	2580
agacggagtt	tcattctggt	acccaggctt	gagtgacgtg	gcgcaatctc	agctcactgc	2640
aactccgcct	cctgggttca	agtgattatc	ctgcctcagc	ctcccagatt	gctgggatta	2700
cagggatgag	ccaccacgcc	cagctaattt	tttttttgta	cttatcagag	acgggggtgat	2760
gatggcatga	tcttggttca	ctgcctccgc	ctcccgggtt	caagcgattc	tcctgcctca	2820
gcctcctgag	tagctgggaa	tacagggtgcc	cgccacccat	gcccggctaa	tttttgtatt	2880
tttagtagag	atgggggtttc	gccatgttgg	ccaggctggt	ctcaaactcc	tgaccttggt	2940
atccacctgc	ctcagcctcc	caaagtgtct	ggattacagg	cgtgagccac	cacgcccagc	3000
caatttttgt	gttttttgggt	agaaacagga	tttcatcatg	ttgcccaggc	tggtctcaaa	3060
gtcctgagtt	caagcaatct	gccacacttg	gcctcaacaa	agtgtctgaa	ttacaagtgt	3120
gagccaccat	gcccagtcct	ctgtctgctt	ttgagtttga	tactgtctgg	atgcttctga	3180
accaggggca	ccctgagggc	aagggtgggg	ctgacttaat	catcgctgtg	tccttgacat	3240
ctcccagcac	tgagtcctg	gagccagtcg	taaatgaatg	cttgccagag	acacagagac	3300
agaaaaaggt	ggattattct	gcccacagag	gtggaaggac	agagaccag	ggaagcaggg	3360
acttccacaa	acacagcagg	ggacagacag	gacggatcca	cagcacctgg	ccggcattat	3420
cacccccact	gtctctgtgg	aaggaatgaa	ttcattccac	aaacatagac	taagtgccca	3480
gggtcactca	gcctcttggg	tactgaagcc	ctggcactct	gggatcagaa	tagcaattaa	3540
taaccatttc	atgatactgc	tttctgcaag	tgaaagggtga	gggatggcca	ggtgagggtg	3600
ctcacgcctg	taatcccagc	actttgggag	gccgaggcgg	gtggatcacc	tgaggtcagg	3660
agttcaagac	cagcctgacc	aatatggtga	aacctcgtct	ctgctaaaag	tataaaaatt	3720
agccgggtgt	ggtggcgggc	acctgtaatc	ctagctactc	cagaggctga	agcagataaa	3780
tcgcttagaa	cccgggaggc	agagggttga	gtgagctgag	attacgccac	tgactccag	3840
cctgggagac	agaggaagtc	cctctgtctc	agaaaaaaaa	aaaaaaaaaa	ctaaactaaa	3900
attagctagg	cgtgggtggc	catacctgga	atcccagtta	gttggggggc	agaggcagga	3960
gactcacttg	aacttgggag	gcagagggtt	tgagtgagc	tgagatcacg	ccactgcact	4020
ccagcctggg	cgacagagct	cgactctgtc	tcaacacaaa	acaaaaacaa	aaaactgaga	4080
aatggctgaa	tgaaaagcag	aaaaactcag	agaaggaaac	aggctggcca	ggtgtgggtg	4140
cccaagcctg	taatcccagc	actttgggag	gctgaggcag	gtggatcacc	tgaggtcaga	4200
agctcaagac	cagcctggcc	aacatggtga	aatcctgtct	ctattaaaaa	tacaaaactt	4260

01997001800.ST25

agccagatgt	gggtggggtgc	acctgtaatc	ccagctactt	gggaggctga	tgcaggagaa	4320
tcgcttgaac	ccatatgggg	gcggagggtt	cagtgaagccg	agatcatgcc	gctgcactcc	4380
agcttggaca	aaagagtga	gccacctgaa	aaagaaaaag	aaaaagaaac	aggccaagag	4440
agagtcacgg	agattcaggg	tgaaaatggc	agacagctcc	accagaggca	tggggagaga	4500
caaaggcttt	cggccattcg	caatgttgg	tccgcagctg	ttggccaagc	acctgtcatg	4560
tgtcaaaggc	ctgtgacgag	tgtgaacagt	gcctgaagag	gaagacagaa	gaggaccggg	4620
acttcagggg	gggtgtcttcc	tagtggacga	cacagagaca	gagatggaaa	gagagagaga	4680
gacactgaga	gacaagagac	aggcaagtga	tggagaggca	gttgcaaaga	aagaacgaga	4740
ggtacaaatg	gccaggcaca	gtggctcatg	cctagaatct	caggactttg	ggaggccgag	4800
gtgggaggat	tactagagcc	caggagttca	agaccagcct	gggtaacatg	gtgaaaaccc	4860
atctctacta	aaaatacaaa	aattagccgg	gcatggtggc	atgtgactgt	agtcccagct	4920
acttgggagg	ctgaggcagg	agaatcgctt	gaacgtggaa	gggtggagggt	gccttgagcc	4980
gagattgcgc	cactgcattc	cagcctgggt	gacaggggtga	gccactgtct	caaatgagag	5040
acagagagag	agagatacaa	gcaagagatg	gaaagagaat	gaaggaaactc	aaagcccata	5100
catacattca	ttcattcact	cattattttac	tgagcccctg	ctgtgtgcca	agccctgttc	5160
taggcatcta	gggatacagt	attgaacaaa	atggataaat	tctttgccct	cgtgggactg	5220
acatcctcgc	tggggagaga	aatgctgaga	gaggccaggt	gcagggcctc	atgcctataa	5280
tcccagcatg	ttgggaggct	gaggcaggag	gatcacttga	gccaggagc	catcctgggc	5340
aacatagtga	gacccatctc	tatctctaca	aaaagttaaa	aaattagctg	ggtatggagg	5400
tgcatgcctg	tgggtcccagc	tactcaggag	gctgaggcgg	gaggatcttg	tgagccctgg	5460
agttcgcggc	tacagtgagc	tacgatgggt	ccactgtact	ccagcctggg	tgatagagca	5520
agaccctgtc	tctaaaaagg	aaaaaagggc	tgggcgccgt	ggctcacgcc	tgtaatccca	5580
acactttggg	aggctgaggc	gggcagatca	tctgagtcag	gagtttgaga	ccagcctggc	5640
taacatgggt	aaaccccgcc	tgtctctacc	aaaaatgcaa	aagattagcg	cttgtaatcc	5700
cagctactca	ggaggctgag	gcaggagaat	cacttgaatc	cagtaggtgg	aggttgcagt	5760
gagccaagat	cacaccactg	ctctccagcc	tggccaacag	agcgagactc	cgtcacaaaa	5820
aaataaataa	ttaaaaaata	aaattaaaat	aaaaaattaa	gagatatagt	gtgtgaaatg	5880
gcattaagag	caatgggtgga	cctgggtgcg	gtggctcacg	cctgtcctag	cactttggga	5940
ggccgaggcg	agtggatcac	ctgcggtcag	gagttcgaga	ccagcctggc	catcatcgtg	6000
aaaccccgctc	tctactaaaa	atataaaaaat	tagctgcgca	tgggtgggtg	cacctgtaat	6060
cccagctact	tgggaggctg	aagcaggaga	atcactggaa	cctgggagga	ggaggttgca	6120
gtgagccaag	attgcaccat	tgcactccag	cctgggtgac	aagagcaaaa	ctctgtctca	6180

01997001800.ST25

aaaacctccg	actcaaaaaa	aaaaaaaaaa	aaaaaaaaaa	gaaaagaaaa	gaaaaagaaa	6240
aacaggggcc	tggccgggga	tagaaaggat	ggggactgat	ggctgatgct	ttcacagaat	6300
gattagggaa	ggtctcactg	agaaggatgat	catttttttt	tgtcctgcct	ttcacctttt	6360
gatagaaagg	tgacatttga	gtaaagacct	gaaggagggtg	aggcagggag	ccctgtgctc	6420
atgcagggaa	gagcattcca	ggcagagggga	acagcgagtg	caaaagccct	gagctgggaa	6480
tgtctgactt	gttcaaggaa	tagtgaggag	acccttggtg	ctggaggagg	gtgagtgatg	6540
gggagagtgg	gagatgtggc	agagaggtga	cagagcagac	attggagacc	tgtgggccac	6600
ggtgaggact	ttggcttttg	tcacaggatg	tggctatgag	caggggagga	cccaatctat	6660
cccgggcggc	cacaggatcc	ctctggatgc	ttgtgacaga	cagactaggg	ggcagaggag	6720
aggagcaggg	agaccagcga	ggagaccccc	gcgttggtct	aggttggaag	ggatgcagga	6780
taggaccagg	gtcggggctg	tggatggcat	gcagagggag	cagattctag	atctgttggc	6840
tgatggacaa	ggtgtggggt	gcaagaggaa	gagtaggggtc	ctaaccctcc	tttgcatagt	6900
tctagtggag	agaaacagag	acagagtcag	tcactcgaac	cagacacaaa	ggctggaaga	6960
gacagagata	gggacttaac	aactacggcc	acagctgggt	gcggtggctc	atgcctgtaa	7020
ttccagcact	tagggaggct	gaggagggca	gatcatctga	ggtcaggagt	ttaagaccag	7080
cctggccaac	agggtgaaac	cccgtctcta	ctaaaaatac	aaaaattagc	agggcatggt	7140
ggtgtgcacc	tgtagacca	gctattcagg	agactgaggc	tggagaatca	cttgaacca	7200
ggaggcagag	gttgcaatga	gccaagattg	cgccactgca	ctttagcctg	ggcgacagag	7260
tgagactcgg	tctcaaaaaa	aaaaaaaaaa	ccaacaaagg	ctgggtgcgg	tggctcacgc	7320
ctgtaatccc	agcacttttg	gaggccgagg	cgggtgggtc	acatgagggtc	aggagtctga	7380
gaccagcctg	gccaacatag	tgaaccccca	tctctactaa	aaatacaaaa	aattagccgg	7440
gtgtggtggt	gggcgcctgc	aatcccagct	actcaggagg	ctaaggcagg	agaatcgctt	7500
gaaccgggga	ggtggagggt	gcagtgtgct	gagatcgctg	cattgcactc	cagactgggc	7560
aacaagagtg	agactctgtc	tcaaacaac	aaacaaacaa	acaaacaaaa	accaacaaag	7620
caactaaaga	atcacagacc	cagagatggc	cagagtcaaa	tagcagatgc	aggaagatgc	7680
caggtgaaag	atgccggggt	ggcccagctc	ggctgtccct	gctgcttgac	ctgcccactc	7740
gccctcttcc	ccacccccga	caggtgattg	acttcggatc	cgccagcatt	ttcagcgagg	7800
tgcgctacgt	gaaggagcca	tacatccagt	cgcgcttcta	ccggggccct	gagatcctgc	7860
tggggctgcc	cttctgcgag	aaggtggacg	tgtggtccct	gggctgcgtc	atggctgagc	7920
tgcacctggg	ctggcctctc	taccccggca	acaacgagta	cgaccaggtg	cgctacatct	7980
gcgaaaccca	gggcctgccc	aagccacacc	tgttgacacg	cgcctgcaag	gcccaccact	8040

01997001800.ST25

tcttcaagcg	caacccccac	cctgacgctg	ccaacccctg	gcagctcaag	tcctcggctg	8100
actacctggc	cgagacgaag	gtaagggaaa	agttgggtga	gggcagtcag	tgtgggggct	8160
gttacatgaa	aaaaaattct	agggtgggca	acgtgggtca	cacctgtaat	tccagcactt	8220
tgggaggctg	tggtgggagg	atcccttgag	cctagggggt	tgagaccagc	ctggggaaca	8280
tagtgagacc	tcctctttat	aaaacatgga	aaaaaaaaatc	agctgggcac	ggtggtatgg	8340
gcctattgtc	ccagatacat	gggaggctga	ggcaggagaa	ttccttgagc	ctgggaggctc	8400
caggctacag	tgaactatga	tcatgccact	acacttgagc	ctgggtgaca	gagcaagact	8460
ctgtttcaaa	aagaaaaatc	tatcagacca	gaagaatgga	gtgaaaagaa	caaaaaacag	8520
aggctgggtg	tggtggctta	cgcctgtaat	cccagcactt	tgggagtccg	aggtgggtgg	8580
atcacgaggt	caggagttta	agaccagcct	ggccaagatg	atgaaacca	gtctctacta	8640
aaaacacaaa	aaattagctg	ggcgcagtg	cagacgcctg	taattccagc	tactcggcgg	8700
gctgaggcag	gagaatcgct	tgaaccaga	gggaggaggt	tgagtgagc	cgagatccca	8760
ccactgcact	ccagcctggg	caacagagtg	agactccgtc	tcaaaaaaaaa	aaaaaaaaaaa	8820
gaaagaaaag	aaaaatattt	ttttcttttt	tttttaagac	ggagtcttga	tctgttgctc	8880
aggctggagt	gcagtgggtg	ggtctcagct	cactgcaacc	tctgcctccc	aggttcaaga	8940
gattctcctg	cctcagcctc	ctgagtagct	gggcttacag	gcacccacca	tcacacccgg	9000
caattttttt	gtatttttac	tagagacggg	gttttaccat	gttggccagg	ctggtctcag	9060
acacccgacc	tcgtgatcca	cccacctcga	cctcccaaag	cagtgagatt	acaggcatga	9120
gccaccgcgc	tcggccaaaa	aaatattttt	ttaataattg	aaaaaaaaaaa	tttctgggct	9180
aaacctcaat	gaggactgga	acttgggggt	cagcctaggg	cattttcaca	gcaagaaaga	9240
gctgcatgag	atcaaatgtg	ggactggtca	gcaactgcag	caagatagat	ctgggggaga	9300
aactgcaggg	agaattagat	gtttggaagt	cagatgtggg	ggctgctcta	gcaagagaga	9360
tctgggtcat	actataagt	tgacaggacg	attggggcag	cttctctgcc	agcttcagct	9420
ccggggctcag	caacttgtgt	ggcaagaggg	attagaccac	agagaatata	tgaggtctga	9480
gattggctat	gagaattgcg	agagaggcca	ggtgcagtg	cttatgcctg	tagtccacgc	9540
actttggtgg	gggccaaggc	aggaggatca	cttgaagtca	ttgtgggcga	catagcaaga	9600
ctgtgtctct	agaaaaaatt	ttttttaaaa	tttagccagg	catggtggca	cacaccggtg	9660
gttccaagct	acttgggagg	ctgaggtggg	aagatcactt	gaaccagga	gttggcagtt	9720
gcagtgagct	atgattgcac	cactacaccc	cagtctgggc	gacacagcaa	gaccctgttt	9780
aaaaaaaaagg	atctaaggcc	aggcacagtg	gctcacacct	gtaatcccag	cactttggga	9840
ggccgaggtg	ggtggatcac	ctgaggtcag	gagttcgaga	acagcctggc	caacatggtg	9900
aaaccccatc	tctactaaaa	atacaaaaat	tagctgggca	tggtggtgga	cacctgtaat	9960

01997001800.ST25

tccagctgct	caggaggctg	aggcaggaga	atcgcttgaa	cctgggaggt	ggaggttgca	10020
gtgagccgag	attgtaccac	tgcactccag	cctgggcaac	aagagtgaaa	ctctgtctca	10080
cacacataca	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaag	gatctgagtg	agacctcagg	10140
tgagtctaga	ggtttggggc	agcagccagt	ctgctacctc	tgtggctttg	cccctcccat	10200
ctgtgcagca	agagcctggg	ttagacagca	gaggggacta	ggagtttgag	gtcataggtc	10260
ttgatttcac	agcaagaagg	gtctggatgg	gaccacaggt	gagactaaaa	gtcaatggca	10320
gtttaatagc	agggggtgac	aaactactat	agcaagaagg	gtctgggttt	gaccaccagg	10380
aggcctggga	tcaagtgtgg	agctgtggca	gtaagaggga	cctggatttg	attccaggga	10440
ggactagaga	ttccgggcag	cccttctgct	agctgctggg	aggggctgca	cccatgggtg	10500
tgaaggggac	tggaggtctg	gggcaagggg	tggaaacttg	gccagtgatt	tgggttcgat	10560
tagaggggct	tgggtgtgac	ggatccaggg	tggccctcct	agcagccaga	gagctccaag	10620
gcagatcatg	ggcagacctg	gaagtcgggg	ctacatgtgg	gtgccacagc	aggagtgccc	10680
agggccctag	ccctgcacaa	tgggtcaacc	tgcccccttc	tccatgcccc	gccagggtgcg	10740
cccattggag	cgccgcaagt	atatgctcaa	gtcgttggac	cagattgaga	cagtgaatgg	10800
tggcagtggt	gccagtcggc	taaccttccc	tgaccgggag	gcgctggcgg	agcacgccga	10860
cctcaagagc	atggtggagc	tgatcaagcg	catgctgacc	tgggagtcac	acgaacgcat	10920
cagccccagt	gctgccctgc	gccacccctt	cgtgtccatg	cagcagctgc	gcagtgccca	10980
cgagaccacc	cactactacc	agctctcgct	gcgcagctac	cgctctctgc	tgcaagtggg	11040
ggggaagccc	cccacgcccg	tcgtggccgc	agaagatggg	acccctact	actgtctggc	11100
tgaggagaag	gaggctgcgg	gtatgggcag	tgtggccggc	agcagcccct	tcttccgaga	11160
ggagaaggca	ccagggtatg	aaagagccat	cgaccagctg	gatgacctga	gtctgcagga	11220
ggctgggcat	gggctgtggg	gtgagacctg	caccaatgcg	gtctccgaca	tgatggtccc	11280
cctcaaggca	gccatcactg	gccaccatgt	gcccgactcg	ggccctgagc	ccatcctggc	11340
cttctacagc	agccgcctgg	caggccgcca	caaggcccgc	aagccacctg	cgggttccaa	11400
gtccgactcc	aacttcagca	acctatttcg	gctgagccag	gtctcgcttg	aggatgacag	11460
gccctgcccg	ggcagcagct	gggaggaagg	agagcatctc	ggggcctctg	ctgagccact	11520
ggccatcctg	cagcgagatg	aggatggggc	caacattgac	aacatgacca	tggaagctga	11580
ggtgagccgg	gtgcgttcag	gatacgatta	gggtgggagg	aggctcagca	cacactcacc	11640
cgtgctcagg	atatgattag	tgtgtgagga	ggctcaacac	acactcacc	atgttcagga	11700
tacaattagg	gacttaggag	gctcagcaca	cacctaatac	cgtcaagata	tgataaggct	11760
cagcacttac	tcagctactt	ccaggctgtg	acaaaaactc	agggcacagt	aatctactta	11820

01997001800.ST25

taagaagctt	gataaagagc	ctgggcaaca	tagtgagatc	ccgtctgcac	caaaaaatta	11880
gaaatattag	ctggtttttg	tggcatgcac	ctgtagtccc	agctactcag	gaggctgagg	11940
tgggaggatc	acttgagcca	gggaggtcga	ggctgcagtg	agctgtcatc	acatcactac	12000
aaaggggcaa	taaaggccca	gcactggtaa	gaccctagca	catgctcacc	ctcatcagga	12060
ggaggtgaca	gaggctcagc	agacactaat	acactaacac	tgcttggtg	atgcccctct	12120
ctcttcccc	acagaggcca	gaccctgagc	tcttcgaccc	cagcagctgt	cctggagaat	12180
ggctgagtga	gccagactgc	accctggaga	gcgtcagggg	cccacgggct	caggggctcc	12240
caccccgccg	ctcccaccag	catggtccac	cccggggggc	caccagcttc	ctccagcatg	12300
tcaccgggca	ccactgatgg	tgattccacc	cctgcccata	actgggggct	gcgctagctg	12360
ggctggcatt	ccctcccaac	ctgaactgct	cctcagagcc	atctcctgaa	cccacaaatt	12420
attcttacag	aaagatagtt	atccagaaat	tctcattccc	cgtctgcggt	gcggtgcgtg	12480
cctgcacacc	tctcctaaac	acagcagggc	tttgaggtct	ggcccatgct	ccttggccag	12540
aaggacagca	ggaaaggggg	ctgcaccccc	ctggccctgc	gctcgccctt	ggccctgctg	12600
cctctgtcta	tttcaatata	gaactgttca	gcagtcctgc	ttcaagcctg	ctctcactgc	12660
ctggggcttg	gactggccct	gggggggaatg	ggggctccag	gctggcaccc	agtgacttgc	12720
tctgcgatgc	tgggcccagc	tgaccactgg	cttaggcggg	agcctgggct	gctgtcacac	12780
taggagggaa	aagctgtgct	tggttgacta	acccttgtcc	taaatacgct	atgtgcttgg	12840
cgtgttggga	atccaccctc	agaacatgct	gtgttcagta	tgtgttaatc	aagtttgccg	12900
gatgctgggg	tctccttgct	tgttgacctg	tccttcctac	atgtttacag	ggttggcatg	12960
cactcaccca	catttgggac	gtgctgggtg	taaatccact	tggcaggcct	aaattcacac	13020
ttggtgcaca	ctctggtgct	cagccatgct	tgttcaccct	tgggatgtgg	caatggtttg	13080
gtccctgctg	atcaatctgg	gaacatgctt	ctctgcagca	catacccatg	ctggctacat	13140
gagtgcctaag	tccatgccgg	gccacagggg	ggcacgctgc	atgctcagca	caggtcagcc	13200
catgtacact	acatgttaag	ggctcagcac	atgccaaccc	atgccagcac	atgctgaggg	13260
ctcagtacat	gctaaccac	actggtcaca	cactgagggc	tcagcacatg	ccagtgacat	13320
gttgagggct	cagcacaaaa	agatgtcccc	accagaggcc	catgccagct	gtcccctacc	13380
cctgcacccc	atctcacacc	actcagtcag	gcacaggctg	tacagacaag	ttatttactt	13440
attataaccc	tgggcccctt	ttgccctgga	aagtgggggt	gggccagggg	gccaggccca	13500
gcatgcaccc	ccatttcttt	gggggctgat	ccctccccca	gctctgctgg	gtcccggggc	13560
cacagcgta	ggccggtggg	ggtggaggtg	gaggtgggag	agcaggggag	agagcctgag	13620
gagccacaat	ggggcagaca	gaagcggggg	cgcggggaca	gggaccgtga	cccagagcac	13680
ctgggtccgc	gggggcccag	caggccttgg	cctgcccact	ggatcgggcc	tcagagcagg	13740

01997001800.ST25

```

cggcaggcgt tgcccacgct gtcagctgag gtgtcaaggt catggctgta aggggagttcc 13800
cagtccctca ggaaaatggc ctccagctgg ctccgcaggc cgcccctccc attctgcgtc 13860
accagcagcg aggtgcccgc cgtctccgtg aagtagttgc cagaccagtt ggaggttcct 13920
agagaggaat ggggtggagca taagggcacc ctcggggggc cgcccctggt gtctgaaccc 13980
cctcttcttc agcgccccgt ggtgctcaag acactcaccg atgtaggtgg cgcgttcagt 14040
caccatgtac ttgttgtggt tgacacgggc atatgggatt cgagcctggg cctcatccgc 14100
ggggaccaca aagagtttct gagtgggagg ggaggatggg aaggagtgtg agaggcaggg 14160
ggagtcggag gagccccggg atcagggagc agagtgtgga gcgagatctg tgggactcca 14220
ctgcttccca cagaatctc gggggccaga acagggccag gtggaggggc cctctgagaa 14280
cgaaagctga aagggaggcc ccggtggtct catttgc 14317

```

<210> 4
 <211> 1851
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS
 <222> (1)..(1848)

```

<400> 4
atg gcc acc atc cag tca gag act gac tgc tac gac atc att gaa gtt 48
Met Ala Thr Ile Gln Ser Glu Thr Asp Cys Tyr Asp Ile Ile Glu Val
1 5 10 15

ctg ggc aag ggc act ttt gga gag gtg gcc aag ggc tgg cgt cgg agt 96
Leu Gly Lys Gly Thr Phe Gly Glu Val Ala Lys Gly Trp Arg Arg Ser
20 25 30

aca ggt gaa atg gtg gcc atc aag atc ctg aag aac gat gcg tac cga 144
Thr Gly Glu Met Val Ala Ile Lys Ile Leu Lys Asn Asp Ala Tyr Arg
35 40 45

agc cgc atc atc aag aat gag ctg aag ctg ctg cgc tgc gtg cga ggc 192
Ser Arg Ile Ile Lys Asn Glu Leu Lys Leu Leu Arg Cys Val Arg Gly
50 55 60

ctg gac cct gac gag gcc cac gtt atc cgc ttc ctt gag ttc ttc cac 240
Leu Asp Pro Asp Glu Ala His Val Ile Arg Phe Leu Glu Phe Phe His
65 70 75 80

gat gcc ctc aag ttc tac ctg gtc ttc gag ctt ttg gag caa aac ctc 288
Asp Ala Leu Lys Phe Tyr Leu Val Phe Glu Leu Leu Glu Gln Asn Leu
85 90 95

ttt gag ttc cag aaa gag aac aac ttc gca ccc ctt cct gcc agg cac 336
Phe Glu Phe Gln Lys Glu Asn Asn Phe Ala Pro Leu Pro Ala Arg His
100 105 110

atc cgc acg gtc aca ctg cag gta cta aga gcg ctg gcc cgg ctc aag 384
Ile Arg Thr Val Thr Leu Gln Val Leu Arg Ala Leu Ala Arg Leu Lys

```

01997001800.ST25

115	120	125	
gaa ctg gcc atc atc cac gct gac ctc aag cct gaa aac att atg ttg Glu Leu Ala Ile Ile His Ala Asp Leu Lys Pro Glu Asn Ile Met Leu 130 135 140			432
gta gac cag acg cgc tgc ccc ttc agg gtc aag gtg atc gac ttt ggc Val Asp Gln Thr Arg Cys Pro Phe Arg Val Lys Val Ile Asp Phe Gly 145 150 155 160			480
tcg gcc agc ata ttc agt gag gta cgc tat gtg aag gag cct tac atc Ser Ala Ser Ile Phe Ser Glu Val Arg Tyr Val Lys Glu Pro Tyr Ile 165 170 175			528
cag tcc cgc ttc tac agg gcc cca gag atc ctg ctg ggg ctg ccc ttc Gln Ser Arg Phe Tyr Arg Ala Pro Glu Ile Leu Leu Gly Leu Pro Phe 180 185 190			576
tgt gag aag gtg gac gtg tgg tct ctg ggc tgt gtc atg gcc gag cta Cys Glu Lys Val Asp Val Trp Ser Leu Gly Cys Val Met Ala Glu Leu 195 200 205			624
cat ctg ggc tgg cct ctc tac cca ggc aac aat gag tat gac cag gtg His Leu Gly Trp Pro Leu Tyr Pro Gly Asn Asn Glu Tyr Asp Gln Val 210 215 220			672
cgc tac atc tgt gag acc cag ggc tta ccc aag ccc cat ttg ctg cat Arg Tyr Ile Cys Glu Thr Gln Gly Leu Pro Lys Pro His Leu Leu His 225 230 235 240			720
gcg gct cgc aag gct cac cac ttc ttc aag cgt aac ccc cac ccc gat Ala Ala Arg Lys Ala His His Phe Phe Lys Arg Asn Pro His Pro Asp 245 250 255			768
gcc acc aac ccc tgg cag ctg aag tcc tct gct gac tac cta gct gag Ala Thr Asn Pro Trp Gln Leu Lys Ser Ser Ala Asp Tyr Leu Ala Glu 260 265 270			816
acc aag gta cgt cct ctg gag cgc cgc aag tac atg ctc aaa tcc ttg Thr Lys Val Arg Pro Leu Glu Arg Arg Lys Tyr Met Leu Lys Ser Leu 275 280 285			864
gac cag att gag aca gtg aat ggt ggt gga gct gtg agc cgg ctg agt Asp Gln Ile Glu Thr Val Asn Gly Gly Gly Ala Val Ser Arg Leu Ser 290 295 300			912
ttt cca gac cgg gag gcc ctg gcg gaa cac gca gac ctc aag agc atg Phe Pro Asp Arg Glu Ala Leu Ala Glu His Ala Asp Leu Lys Ser Met 305 310 315 320			960
gtg gag ctg atc aaa cgc atg ctg aca tgg gag tcg cac gaa cgc atc Val Glu Leu Ile Lys Arg Met Leu Thr Trp Glu Ser His Glu Arg Ile 325 330 335			1008
agt ccc agt gcg gcc ctg cgt cac ccc ttc gtg tcc atg cag cag ctg Ser Pro Ser Ala Ala Leu Arg His Pro Phe Val Ser Met Gln Gln Leu 340 345 350			1056
cgg agt gcc cac gag gcc acc cgc tac tac cag ctg tcg ctc aga ggc Arg Ser Ala His Glu Ala Thr Arg Tyr Tyr Gln Leu Ser Leu Arg Gly 355 360 365			1104
tgt cgg ctg tcc ctg cag gtg gat ggc aag cca ccc cca cct gtc ata 1152			

01997001800.ST25

Cys 370	Arg	Leu	Ser	Leu	Gln	Val 375	Asp	Gly	Lys	Pro	Pro 380	Pro	Pro	Val	Ile	
gcc Ala 385	agc Ser	gca Ala	gag Glu	gac Asp	ggg Gly 390	cct Pro	ccc Pro	tac Tyr	tac Tyr	cgc Arg 395	ctg Leu	gct Ala	gag Glu	gag Glu	gag Glu 400	1200
gag Glu	act Thr	gca Ala	ggc Gly	ctg Leu 405	ggg Gly	ggg Gly	gtg Val	aca Thr	ggc Gly 410	agt Ser	ggg Gly	tcc Ser	ttc Phe	ttc Phe 415	agg Arg	1248
gag Glu	gac Asp	aag Lys	gct Ala 420	ccg Pro	gga Gly	atg Met	cag Gln	agg Arg 425	gcc Ala	atc Ile	gac Asp	cag Gln	ctc Leu 430	gat Asp	gac Asp	1296
ctg Leu	agt Ser	ctg Leu 435	caa Gln	gag Glu	gcc Ala	aga Arg	cgg Arg 440	ggg Gly	ctg Leu	tgg Trp	agc Ser	gac Asp 445	aca Thr	cgg Arg	gcc Ala	1344
gac Asp	atg Met 450	gtc Val	tct Ser	gac Asp	atg Met	ctg Leu 455	gtt Val	cca Pro	ctc Leu	aaa Lys	gtg Val 460	gcc Ala	agt Ser	acc Thr	agc Ser	1392
cac His 465	cga Arg	gtc Val	cct Pro	gac Asp	tca Ser 470	ggc Gly	cca Pro	gag Glu	cct Pro	atc Ile 475	ctg Leu	gcc Ala	ttc Phe	tac Tyr	ggc Gly 480	1440
agc Ser	cga Arg	ttg Leu	acc Thr	ggc Gly 485	cgc Arg	cat His	aag Lys	gcc Ala	cgc Arg 490	aag Lys	gcc Ala	cca Pro	gca Ala	ggc Gly 495	tcc Ser	1488
aaa Lys	tct Ser	gac Asp	tcc Ser 500	aac Asn	ttc Phe	agt Ser	aac Asn	ctc Leu 505	att Ile	cgg Arg	ctg Leu	agc Ser	cag Gln 510	gcc Ala	tca Ser	1536
cct Pro	gag Glu	gat Asp 515	gcc Ala	ggg Gly	ccc Pro	tgt Cys	cgg Arg 520	ggc Gly	agt Ser	ggc Gly	tgg Trp	gag Glu 525	gaa Glu	gga Gly	gaa Glu	1584
ggc Gly 530	cgc Arg	acg Thr	acc Thr	tcc Ser	aca Thr	gag Glu 535	ccg Pro	tct Ser	gtc Val	atc Ile	cca Pro 540	caa Gln	cgg Arg	gaa Glu	gga Gly	1632
gat Asp 545	ggg Gly	cct Pro	ggc Gly	atc Ile	aaa Lys 550	gac Asp	agg Arg	ccc Pro	atg Met	gat Asp 555	gcc Ala	gag Glu	agg Arg	cca Pro	ggc Gly 560	1680
cct Pro	gag Glu	ctc Leu	ttt Phe	gat Asp 565	ccc Pro	agc Ser	agc Ser	tgt Cys	cct Pro 570	gga Gly	gag Glu	tgg Trp	ctg Leu	agt Ser 575	gag Glu	1728
cca Pro	gaa Glu	tgg Trp	acc Thr 580	cta Leu	gag Glu	ggc Gly	atc Ile	cgg Arg 585	ggg Gly	tct Ser	cga Arg	gct Ala	caa Gln 590	ggg Gly	ctc Leu	1776
cca Pro	gct Ala	cac His 595	cat His	ccc Pro	cac His	ccc Pro	cac His 600	ggg Gly	cca Pro	ccc Pro	agg Arg	acc Thr 605	acc Thr	agc Ser	ttt Phe	1824
ctg Leu	cag Gln 610	cat His	gtt Val	gga Gly	ggg Gly	cac His 615	cac His	tga								1851

01997001800.ST25

<210> 5
<211> 616
<212> PRT
<213> Mus musculus

<400> 5

Met Ala Thr Ile Gln Ser Glu Thr Asp Cys Tyr Asp Ile Ile Glu Val
1 5 10 15
Leu Gly Lys Gly Thr Phe Gly Glu Val Ala Lys Gly Trp Arg Arg Ser
20 25 30
Thr Gly Glu Met Val Ala Ile Lys Ile Leu Lys Asn Asp Ala Tyr Arg
35 40 45
Ser Arg Ile Ile Lys Asn Glu Leu Lys Leu Leu Arg Cys Val Arg Gly
50 55 60
Leu Asp Pro Asp Glu Ala His Val Ile Arg Phe Leu Glu Phe Phe His
65 70 75 80
Asp Ala Leu Lys Phe Tyr Leu Val Phe Glu Leu Leu Glu Gln Asn Leu
85 90 95
Phe Glu Phe Gln Lys Glu Asn Asn Phe Ala Pro Leu Pro Ala Arg His
100 105 110
Ile Arg Thr Val Thr Leu Gln Val Leu Arg Ala Leu Ala Arg Leu Lys
115 120 125
Glu Leu Ala Ile Ile His Ala Asp Leu Lys Pro Glu Asn Ile Met Leu
130 135 140
Val Asp Gln Thr Arg Cys Pro Phe Arg Val Lys Val Ile Asp Phe Gly
145 150 155 160
Ser Ala Ser Ile Phe Ser Glu Val Arg Tyr Val Lys Glu Pro Tyr Ile
165 170 175
Gln Ser Arg Phe Tyr Arg Ala Pro Glu Ile Leu Leu Gly Leu Pro Phe
180 185 190
Cys Glu Lys Val Asp Val Trp Ser Leu Gly Cys Val Met Ala Glu Leu
195 200 205
His Leu Gly Trp Pro Leu Tyr Pro Gly Asn Asn Glu Tyr Asp Gln Val
210 215 220

01997001800.ST25

Arg Tyr Ile Cys Glu Thr Gln Gly Leu Pro Lys Pro His Leu Leu His
 225 230 235 240

Ala Ala Arg Lys Ala His His Phe Phe Lys Arg Asn Pro His Pro Asp
 245 250 255

Ala Thr Asn Pro Trp Gln Leu Lys Ser Ser Ala Asp Tyr Leu Ala Glu
 260 265 270

Thr Lys Val Arg Pro Leu Glu Arg Arg Lys Tyr Met Leu Lys Ser Leu
 275 280 285

Asp Gln Ile Glu Thr Val Asn Gly Gly Gly Ala Val Ser Arg Leu Ser
 290 295 300

Phe Pro Asp Arg Glu Ala Leu Ala Glu His Ala Asp Leu Lys Ser Met
 305 310 315 320

Val Glu Leu Ile Lys Arg Met Leu Thr Trp Glu Ser His Glu Arg Ile
 325 330 335

Ser Pro Ser Ala Ala Leu Arg His Pro Phe Val Ser Met Gln Gln Leu
 340 345 350

Arg Ser Ala His Glu Ala Thr Arg Tyr Tyr Gln Leu Ser Leu Arg Gly
 355 360 365

Cys Arg Leu Ser Leu Gln Val Asp Gly Lys Pro Pro Pro Pro Val Ile
 370 375 380

Ala Ser Ala Glu Asp Gly Pro Pro Tyr Tyr Arg Leu Ala Glu Glu Glu
 385 390 395 400

Glu Thr Ala Gly Leu Gly Gly Val Thr Gly Ser Gly Ser Phe Phe Arg
 405 410 415

Glu Asp Lys Ala Pro Gly Met Gln Arg Ala Ile Asp Gln Leu Asp Asp
 420 425 430

Leu Ser Leu Gln Glu Ala Arg Arg Gly Leu Trp Ser Asp Thr Arg Ala
 435 440 445

Asp Met Val Ser Asp Met Leu Val Pro Leu Lys Val Ala Ser Thr Ser
 450 455 460

His Arg Val Pro Asp Ser Gly Pro Glu Pro Ile Leu Ala Phe Tyr Gly
 465 470 475 480

01997001800.ST25

Ser Arg Leu Thr Gly Arg His Lys Ala Arg Lys Ala Pro Ala Gly Ser
485 490 495

Lys Ser Asp Ser Asn Phe Ser Asn Leu Ile Arg Leu Ser Gln Ala Ser
500 505 510

Pro Glu Asp Ala Gly Pro Cys Arg Gly Ser Gly Trp Glu Glu Gly Glu
515 520 525

Gly Arg Thr Thr Ser Thr Glu Pro Ser Val Ile Pro Gln Arg Glu Gly
530 535 540

Asp Gly Pro Gly Ile Lys Asp Arg Pro Met Asp Ala Glu Arg Pro Gly
545 550 555 560

Pro Glu Leu Phe Asp Pro Ser Ser Cys Pro Gly Glu Trp Leu Ser Glu
565 570 575

Pro Glu Trp Thr Leu Glu Gly Ile Arg Gly Ser Arg Ala Gln Gly Leu
580 585 590

Pro Ala His His Pro His Pro His Gly Pro Pro Arg Thr Thr Ser Phe
595 600 605

Leu Gln His Val Gly Gly His His
610 615

<210> 6
<211> 11351
<212> DNA
<213> Mus musculus

<400> 6
ttcttcccct ctgatttctc accaaaatgt caagcttctt cttattttat ttttattctt 60
tatttattgg tttttcaaga gagggctttt cagccttgga tgtcctggaa ctcagtagac 120
ccgactggcc ttgaactcac agagatctac ctgcatcccc ctccggagtg ctgggattaa 180
gagcatgtgc cacaactgcc tggcaagcag cctcatcttc tatggtttcc atacttcaga 240
gctgacagat ctccattcct ggggggtggg gggaggagct tctggggatg cctccataca 300
ccatatacgc catatacacc atatatacca tatacatcat atataccata taaaacatat 360
acaccatata ctggagctgt gggatatggca gttcccatcc tgtctctggc tcccaaatga 420
ctgacttaag cataagtgt ctaaaaaact ttttgttccc tgctaggcag tgcttgtgct 480
ctcctttaat ccagcactc tttaattcca gcagttagga ggcggaggca aggcagatct 540
ctgtgagttc gaggccagcc tgatctacag agttccaaga gagccaaggc tacacagaga 600

01997001800.ST25

aaccttgtct	gggggggggg	ggggaaccaa	aagagcattt	attgcttttt	cagaggatct	660
gggttgatt	cccagagccc	accttgaagc	tcacaaccat	ctgtaactct	agtcacagcg	720
gatatatata	tatatatatt	tatagcctgg	gaatggggca	gtaagcggga	tgtgaagtga	780
ataattaatt	aattaattag	ggggctggag	agatgactca	gcaggtaaga	gcagtggctg	840
ctcttccaca	ggtcctgagt	tcaattccca	gcaaccacat	ggtggctcac	aaccatctgt	900
aatgggattc	tatgcccttt	tctggtgtgt	ctgaagacag	ctgacatgca	gtcatataaa	960
tagaataaat	aaatctaaaa	aaaaacccaa	aacaaaacca	tatattaaat	agaaaaacgt	1020
atggaagaga	aaaaacaaga	caaggagaaa	tgccttttgt	ttaacatcca	tttcctgaac	1080
ctaattctcag	tgtcttctcc	cagctattgt	cccttgcca	tgtcaccttc	tcagggactg	1140
tcctacacct	tgtcgtagat	ggtttcttcc	ctccctgata	ttctcaggac	ctcagcctac	1200
cctcttgctt	tatggagggg	ctcaccagct	cagggcctga	accctcacc	agcctcatct	1260
gcctgggtcc	tgccttagcc	tccttgctgg	ggtctggagc	ctccatcctt	gccttctaca	1320
gtttgccttt	cttcatgtct	gactgagtgg	tcgttccctt	acctgaagcc	ctcatggctc	1380
cccagtgctt	ggttcaaacg	tttttagcct	gcattcagtg	cctttcacia	cctggatctt	1440
actttatcta	catatcccct	ccatgcttca	cacacacaca	cccacacaca	cacacacaca	1500
cacacacaca	cacagactct	ctaactttct	tcactctcat	atgcctgtag	gtatgtccca	1560
cttctgaact	ccaaggtca	accattaaaa	tctcactcag	tccaccctgt	ccgtgcttct	1620
ccaggattcc	ggtcagcggg	tgggggaggg	gtcccagcct	ggtacccac	cccctccatt	1680
ccagcctggg	actcaggtct	ctaacaacag	aatcaaagcc	acttagcaac	gctggaaccc	1740
attcaggggg	gcctgagccc	cctcatccca	agccaagagg	gctttggggg	aggggtgcag	1800
cccctggtag	actcactgtg	tggccaaggg	ggtcaagggg	cgtcaggagg	acaggggctg	1860
aactcatata	aggagagaca	cgagtgtggt	tatcttcccc	ctgctaggag	gactagctag	1920
gggccatcat	caggggtggga	ggtctaggca	accaagccag	ttgttgtaaa	ggcagagtag	1980
tgactggcag	ccaaggtacc	atggccacca	tccagtcaga	gactgactgc	tacgacatca	2040
ttgaagttct	gggcaagggc	acttttggag	aggtggccaa	gggctggcgt	cggagtacag	2100
gtgaaatggt	ggccatcaag	atcctgaaga	acgatgcgta	ccgaagccgc	atcatcaaga	2160
atgagctgaa	gctgctgcgc	tgcgtgcgag	gcctggaccc	tgacgaggcc	cacgttatcc	2220
gcttccttga	gttcttccac	gatgccctca	agttctacct	ggtcttcgag	cttttggagc	2280
aaaacctctt	tgagttccag	aaagagaaca	acttcgcacc	ccttcctgcc	aggcacatcc	2340
gcacggtcac	actgcaggta	ctaagagcgc	tggcccggct	caaggaactg	gccatcatcc	2400
acgctgacct	caagcctgaa	aacattatgt	tggtagacca	gacccgctgc	cccttcaggg	2460

01997001800.ST25

tcaaggtgag	tgaggctgcc	tgggaaatgg	ctttgcttag	ttcttg gatg	ctctgctaac	2520
acatgggtct	ccctagtcag	ttccgtgacg	cagctccggg	tgtccctgaa	ccccaagctg	2580
cccctccttg	ctgctctctg	gctgtcttct	gtatcccatc	ccaattcttg	ctttgttttg	2640
ttttgttttc	gagacagagt	cgatgtggca	caggctggcc	ttgaactcac	tgtgtagctg	2700
aggacgactt	gaactcatgg	cctatctgcc	ctccctgcct	ccacgaccta	agtgctagt	2760
gtcacctaag	tcaccacagc	cagctcgctt	tgttggtgtt	tgttttttga	agacaggatc	2820
tcagggagtc	caggctggtc	tggaatttga	gtgggtttcc	cttctcaagt	accgggatta	2880
caggcattca	ccatcttacc	tggcttctcc	atctcaactc	tgaggtcctt	tctatcgaag	2940
actggaggtc	ttctgtgcct	cccctctagg	tcctgagctt	gccaaccctt	gcccgtttgg	3000
cttacttctt	ctggctcagg	tctgggcctc	gtgggtcttg	cattctagt	ggggagatgg	3060
tagcagggtg	agaagtaaag	cgtgttgtgg	atgtgagacc	agagaaaaca	ggagagagag	3120
gctgggaact	gctcagacat	gggaagtggg	agacaggggag	gtcacacttc	aggaggtctt	3180
gaggggaaga	gaaggccatg	gagaagggat	gagtttccag	gatgaaggag	gagccagcac	3240
aaaggctcga	ggtaggagca	tgtctaagta	ttctagcaac	acacagggga	gttctgtgca	3300
gttgaagcac	aatgatggg	gagcaaagag	ggagaaaagg	acaccaagga	ggtaggggtg	3360
gggttgacac	aatcctcata	ggcacagtca	agattgggtt	tgttttggta	tgtatatctc	3420
cctccatggt	ttcacaatgt	atccctggct	ggccttgaac	ttactatgta	gacgaggcag	3480
gcttcaaact	catggcagat	cctcctgcct	ctgcctccca	aacaatggac	tcaaagttac	3540
acaccaacac	gctaggcttg	cagacgaatt	cagagcagca	ggatgggctc	tgacttaggg	3600
gctcatcttg	gggggaagta	ggaccaagaa	agcagatggg	gtgatccaag	aggagtccca	3660
ggtaaaagat	gtaactgggg	cattcgtgga	ttccgggcag	atttttagagc	tagagacaac	3720
agaattagaa	ttgattgatg	ggtttcacag	tgtgaggggag	aggggctggg	gagatgctca	3780
gatagtaatg	tccccgctga	acaagcatgg	aaacctcagt	gcagaccctt	accatcccca	3840
tgaaaagacg	gctgtggcag	cacacctgta	atatcagtgt	aggggaggta	gagacaggag	3900
gattcctaga	gcttgatggc	cagccagtct	agccaatcag	caggctcggg	gttccaggag	3960
gggagggatc	ttatctcata	tataaaagtt	agagagcgat	agaagacatg	cgatgcatgt	4020
gtgatgacac	acatgtgcac	acgcatacaa	acatctacac	atacatttag	aaaaagaagg	4080
gccagcaaga	tggctcagcc	agttcagggt	cttgctgcca	agcctaagga	cttgagtcca	4140
gtagccagaa	cccatatggt	gggagcagag	aactgacttc	ctgactctgg	aagttgtcct	4200
ctgacctcta	cacatatacc	actgcatttg	catatccctc	ccccactaa	attcagttta	4260
aaaatgaaaa	agtgtgaggg	gcagctgggc	attgtggcag	cctcctatat	ttccagcact	4320
gcacaagtgg	aggcaggagg	attaaaaatt	caaggctatc	cttggctggt	aaacaagttc	4380

01997001800.ST25

aaggctcagct	tgcactttca	aggtctgtct	tgcactacct	gagacctcat	ctttaaagaa	4440
aagatgtgag	agaggctgag	tgggctcaag	ttgagccaga	gcctgcggat	ctagacaaat	4500
gcaaggtggt	tctagcctct	gttcctgttc	ctgaccctgg	gtgggcacct	aagctgtccc	4560
ttgttcccc	tagatcccac	ttctgctgag	cctctgtctg	ggcctcatca	acctactcag	4620
acaccctct	tgtgcctcct	ccatcagagc	tcagactcct	ctgcctgctt	atctgtcagc	4680
aaggcactgg	tgatgactgg	gctggcagca	gcacccaagg	gcagggctgg	accaaagctg	4740
cctatactgt	gcctctcccc	gtgccccact	gaatgttaga	gacacagaga	caggaagaga	4800
tgggtatttc	tgccctgttg	gatggaagga	cagttagccg	agaggaagag	agctctgtag	4860
acctaacagg	gctcacacag	cacctggggg	tcgctggcac	ccttcaagtg	ctttcagaat	4920
gaagggactc	cacatacact	ggctcaactc	tcagtgtcac	tgaagtccta	gggggcgttg	4980
agtccagact	aataactatt	tcatgattgg	ccttgtgtgc	atggaggtaa	gaggtgacta	5040
aatggataaa	taaatgaata	aataaacgca	gggaagctgc	agcctgccct	gagtcacagg	5100
aattcacagt	gagactggaa	gagcgccacc	tgggtggcag	aggaaaggca	ggcgcctacc	5160
catggcccat	ggattaccaa	gaagcttggg	aattacaagc	tgaaggcctt	cgggggtgtg	5220
tcagtgtctg	acggtaaaga	tcttagagga	cttggtttta	ggatggtacc	tttccagtcc	5280
atgacacaga	aacaaagaca	gagacactgg	gagatgagga	ttagctgaag	aggcagtggg	5340
agagagagag	agaaagagag	agagagagac	agagccactg	ggtggtggca	gcacatgctt	5400
ttaatatcag	cacttgggag	gtacaggtag	aggtggattt	ctgagttcta	ggccatcctg	5460
gtctacagag	tgagtttaag	gaccaccagg	gttacacaga	gaaaccctgt	cttgaaaaac	5520
aaatacacac	acatacacac	acacacacac	atacatatac	atacatatat	atatgagaag	5580
ggagccagac	ctggtgaaac	atgcctataa	tcccagatta	ttgtaccttc	tacatttcct	5640
ctcttatgaa	tgaccctgcc	tgaagttcaa	tctctaggac	catggaagac	agacacacaa	5700
atcaaagggg	ggacaatact	gattggtgta	aaatgcctac	tagttccagg	cctccagaga	5760
cacagccttg	aataaaatac	aaagctcttg	ttgtcatggg	actggagttc	tatTTTTTTT	5820
ttcatttatt	ttctttttat	atgtgagtgc	aaatgtatgg	atgtatggtg	ttccaagagg	5880
tcagagggct	ttggattccc	cctggaacta	gagttccaga	caggtgtgag	ctgccatgtg	5940
ggtgctggga	gccaaacctg	gattccctgc	aagagcagcc	agtgctcttt	accactgagc	6000
catctctcag	gcctagcggg	ttaagtgctt	gctgcacaca	agcagaagag	cctaaattca	6060
gatccccagg	gaccccataa	aagctgggct	tgactttata	atcccagggc	tgaggggatg	6120
taaggggaaga	caagaagatc	ctgagggctc	agtggccccg	ctatcttgcc	aaagttgtga	6180
gtttcaggtt	cactaagaga	ccttgcctca	caaaataagg	ttacagcggg	agaggaagat	6240

01997001800.ST25

agaggacctt	tggccttata	catgcacaca	tgggtgatga	cacccacata	tgcctataac	6300
acctccaaca	cacacaacac	ccccctcag	ggaaatatat	atatagtatg	tgaaatgatg	6360
ttaaaatcat	agctgggagc	tgggtgaaag	aacaggaatt	caaggacatc	cttggctaca	6420
taaccaggtt	gaagccagcc	tgggtatat	gagaccctgt	ctcaaaacta	accaacaaaa	6480
aggacagagg	atatgggtga	atacttgctt	actatgcact	acagcagggg	gaggggtcca	6540
actattatag	gcacaagttc	aagcagagaa	tcagacagag	ccagacctga	cacctgacac	6600
agaagcaata	gctagaggac	agaggcaggg	tcattcataa	gaaaggaagt	gtagaaggta	6660
caagagctag	gcagacacag	gagatacaca	gggatgagtc	ccaggagggg	cctatcctgt	6720
catctctacc	actccaccaa	cccagctgcc	ctgtgctcca	tccccctgt	cctccatagg	6780
tgatcgactt	tggctcggcc	agcatattca	gtgaggtacg	ctatgtgaag	gagccttaca	6840
tccagtccc	cttctacagg	gccccagaga	tcctgctggg	gctgcccttc	tgtgagaagg	6900
tggacgtgtg	gtctctgggc	tgtgtcatgg	ccgagctaca	tctgggctgg	cctctctacc	6960
caggcaacaa	tgagtatgac	caggtgctgt	acatctgtga	gacccagggc	ttaccaagc	7020
cccatttgct	gcatgcggct	cgcaaggctc	accacttctt	caagcgtaac	ccccacccg	7080
atgccaccaa	cccctggcag	ctgaagtcct	ctgctgacta	cctagctgag	accaaggtat	7140
gggggagcat	gcaggggtgaa	gacagcctgt	gctgggggggt	ggggacgata	ctatatcgcc	7200
atgtctcttt	ggctggactg	agggctctagg	tgaaatgtgg	agcctgagtt	aggtcacata	7260
tcctccctgt	agcagtggga	gagtgatgga	ttggaaatca	agaatctggg	atgaggggga	7320
cgactggaga	attgaaatag	caagagaact	tccagtcata	tcattgggag	aagtcagggg	7380
gtgattttga	gtctagatac	atggcaggct	gggtgtcccc	acccccacc	aggtacgtcc	7440
tctggagcgc	cgcaagtaca	tgctcaaatc	cttggaccag	attgagacag	tgaatgggtg	7500
tggagctgtg	agccggctga	gttttccaga	ccgggaggcc	ctggcggaac	acgcagacct	7560
caagagcatg	gtggagctga	tcaaacgc	gctgacatgg	gagtcgcacg	aacgcacatg	7620
tcccagtgcg	gccctgcgtc	acccttctgt	gtccatgcag	cagctgcgga	gtgcccacga	7680
ggccacccgc	tactaccagc	tgctcgctcag	aggctgtcgg	ctgtccctgc	aggtggatgg	7740
caagccaccc	ccacctgtca	tagccagcgc	agaggacggg	cctccctact	accgcctggc	7800
tgaggaggag	gagactgcag	gcctgggtgg	tgtgacaggc	agtgggtcct	tcttcaggga	7860
ggacaaggct	ccgggaatgc	agagggccat	cgaccagctc	gatgacctga	gtctgcaaga	7920
ggccagacgg	gggctgtgga	gcgacacacg	ggccgacatg	gtctctgaca	tgctggttcc	7980
actcaaagtg	gccagtacca	gccaccgagt	ccctgactca	ggcccagagc	ctatcctggc	8040
cttctacggc	agccgattga	ccggccgcca	taaggcccg	aaggccccag	caggctccaa	8100
atctgactcc	aacttcagta	acctcattcg	gctgagccag	gcctcacctg	aggatgccgg	8160

01997001800.ST25

gccctgtcgg	ggcagtggct	gggaggaagg	agaaggccgc	acgacctcca	cagagccgtc	8220
tgtcatccca	caacgggaag	gagatgggcc	tggcatcaaa	gacaggccca	tggatgccga	8280
ggtaagtggg	gtgcagactg	gcacccagag	cttaattgac	ggtgcacagg	tgacagggcc	8340
gtgcttctta	cagctgcagc	atctgtcatc	tcaacacggg	cccaagattc	agtaaatact	8400
gacctcctgc	acaagggtggc	agggctcagc	tcacaccaat	accctcagga	ctggacaagg	8460
ctgatacaaa	ctctaattaa	ggatggcaca	gaaaacaggc	acctagtgat	gggctggtta	8520
agaaatgggt	gaggtgctgg	gtggtgtggt	acattatctg	taatcccggg	gagctcaaac	8580
aggaggggtca	tctcaagggtc	aagtctagtt	tgggtcataa	caagacccta	tctcaaaaag	8640
caaacagtaa	tattccctcc	ctaccaaagg	ggctacagat	ttagttgtgc	agtagagttc	8700
ttgcctagta	tctaccagtg	agagaatggg	gactctccta	cacagagtgc	ttaccaatgt	8760
gaggggctgg	gggtgtggct	cagtggtaga	gcccctgcct	agaatccctc	agtgaggggac	8820
tgggggcatg	gctcagtggg	agagcccctg	cctagaatcc	cccagtgagg	ggctgggggc	8880
gtggctcagt	ggtagagccc	ctgcctagaa	tcccccagtg	aggggctggg	ggtgtggctc	8940
agtggtagag	cccctgccta	gaatccccc	gtgaggggct	ggggacgtgg	tccagaggca	9000
gagcatttgc	ctggtctgcc	aaggcttcca	tccctaatac	ctttgcaatg	tgggaaggcc	9060
tacacagggg	gtgagggcct	tcatacctgc	tcactccttc	cagtagacag	gtacacacct	9120
cagcaggtac	ccataattct	tgctgatatt	cttttctttt	cccctccaca	gaggccaggc	9180
cctgagctct	ttgatcccag	cagctgtcct	ggagagtggc	tgagttagcc	agaatggacc	9240
ctagagggca	tccgggggtc	tcgagctcaa	gggctcccag	ctcaccatcc	ccacccccac	9300
gggccaccca	ggaccaccag	ctttctgcag	catgttggag	ggcaccactg	atggggactc	9360
accctatcg	tttcatgggg	tctgagctag	ctgggctggc	gttccccttc	ttgatccgaa	9420
atggcacctt	agagccatcc	tctgaaccta	cagattattc	ttacagaaaa	atagaaatcc	9480
agatgttcct	attcccctgc	ccctggcaca	tgctgtatc	ccaccctaaa	tgttggaggt	9540
cgtcaggggtc	tggcctgagg	ccctgaggcc	agttagttgg	gaagaggctg	caccctgggtg	9600
gccatgactg	tgcttgggcc	tgctgcctc	tgtgtatttc	aataaataac	tgttccaaac	9660
cctgctcctg	cctgttacca	ctgggtgaac	ctgtaccacc	catattgggc	caagggggca	9720
cccagggcct	gcctcgcccc	tgctgtgact	ggttggccac	tggctgaacc	cagagggtca	9780
gtcagtggca	gggaaaagct	gcgcagggca	cagtaacctg	tgctctatat	acactaaatt	9840
aaacctggta	tggggcagtg	ggtttghtaat	tctaagcact	caggagactg	aggcaggaga	9900
attacaaggt	caagaccagt	ttgggcttat	gatgagacct	tgtcaacaca	ggggttgtag	9960
gggagatggg	atgaggcaag	ggcctggctc	cttgggaatc	tacccttagg	atgttcacat	10020

01997001800.ST25

gttgacaag gaccctggc ttcgtcctct atgtctgtga tggacaggcc atgcgctcgc 10080
tcgctcatgc tctggacatg ttaagtgtaa acacactggt aggaataaat tcagacttcg 10140
cacatgctgt gttgttcaca tacgcacatg ctccggtggt cagatatggt agtccagctg 10200
ccacttgggc ccggccttat tccccccac cccaccccc acccaccac ctcccattcc 10260
catccccaac ggccgtaaat ggcattcagc agtggttcta cccgactgc tctgtggagc 10320
atactcggtta caaacatgct ggttctacgc atgtcagcc catgcttgcc agtgcggtca 10380
cacactgcat gccagccca cgccagcctt cgtgcgact gcatgctgtc accagcagaa 10440
gtccataccc cctccccct aacaaacata ccatctcata ccactcagtt aagcacaggc 10500
tatacagaca attatttact tataatcttg gccctttggg ggtgggcca aggtctgggc 10560
ccagcatgca cccccacttc tttggggccc aatccccagc tctgctaggt ccacaggggc 10620
cagagtgtca ggccagtggc ggtggaggtta gcagcaggag tatagtggag agtacagagc 10680
cacacgggat agacagaggc aagggcatgg ggacagtaac caggaccag agctgagtcc 10740
aaggaggcct ggaaggcttt gacctgtccg tcgggctgag cctcaaagca ggcggcaggc 10800
attgccaca ctgttggtg aggtgtcgag atcgtggctg tatggggatt cccagtctct 10860
caggaaaaca gcctccagct gactgcgcaa gccaccatgc ccgttctgtg tcaccagcag 10920
ggaggtgcct gctgtctccg tgaagtagct tccagaccag ttggaggttc ctgggagcaa 10980
ggggtggagt gagggtctga tgggtggcca gaccctagtg cccaggcctt tcctttgata 11040
tggtactggg ggcacttacc aatgtatgag gcacgttcag tcaccatgta cttgttggtg 11100
ttgacacggg cataggggat tcgggcctgg gactcatccg tagggaccac aaacagtttc 11160
tgcaggggag aggaggatgg tgaggtgggg gctcaagggt cagggtgggt gtctctgaga 11220
agtcctggga tggtaggatg gcatgtgaat ggtatctcca aaaggcactt ggctgcttct 11280
ctgggaaggg tggatcctgg gacaaaata ggtcccaggg cagctgggcc tcggtgaaca 11340
cgagctgagg c 11351

<210> 7
<211> 1851
<212> DNA
<213> Macaca fascicularis

<220>
<221> CDS
<222> (1)..(1848)

<400> 7
atg gct acc acc cag tca gag acc gac tgc tac gac atc atc gag gtc 48
Met Ala Thr Thr Gln Ser Glu Thr Asp Cys Tyr Asp Ile Ile Glu Val
1 5 10 15
ttg ggc aag ggg acc ttc ggg gag gta gcc aag ggc tgg cgg cgg agc 96

01997001800.ST25

Leu	Gly	Lys	Gly	Thr	Phe	Gly	Glu	Val	Ala	Lys	Gly	Trp	Arg	Arg	Ser	
			20					25					30			
acg	ggc	gag	atg	gtg	gcc	atc	aag	atc	ctc	aag	aac	gac	gcc	tac	cgc	144
Thr	Gly	Glu	Met	Val	Ala	Ile	Lys	Ile	Leu	Lys	Asn	Asp	Ala	Tyr	Arg	
		35					40					45				
aac	cgc	atc	atc	aag	aat	gag	ctg	aag	ctg	ctg	cac	tgc	atg	cga	ggc	192
Asn	Arg	Ile	Ile	Lys	Asn	Glu	Leu	Lys	Leu	Leu	His	Cys	Met	Arg	Gly	
		50				55					60					
ctg	gac	cct	gag	gag	gcc	cac	gtc	atc	cgc	ttc	ctc	gag	ttc	ttc	cac	240
Leu	Asp	Pro	Glu	Glu	Ala	His	Val	Ile	Arg	Phe	Leu	Glu	Phe	Phe	His	
					70					75					80	
gac	gcc	ctc	aag	ttc	tac	ctg	gtc	ttc	gag	ctg	ctg	gag	caa	aac	ctt	288
Asp	Ala	Leu	Lys	Phe	Tyr	Leu	Val	Phe	Glu	Leu	Leu	Glu	Gln	Asn	Leu	
				85					90					95		
ttt	gag	ttc	cag	aag	gag	aac	aac	ttc	gcg	ccc	ctc	cct	gcc	cgc	cac	336
Phe	Glu	Phe	Gln	Lys	Glu	Asn	Asn	Phe	Ala	Pro	Leu	Pro	Ala	Arg	His	
			100					105					110			
atc	cgt	aca	gtc	acc	ctg	cag	gtg	ctc	aga	gcc	ctg	gcc	cgg	ctc	aag	384
Ile	Arg	Thr	Val	Thr	Leu	Gln	Val	Leu	Arg	Ala	Leu	Ala	Arg	Leu	Lys	
		115					120					125				
gag	ctg	gca	atc	atc	cac	gct	gat	ctc	aag	cct	gag	aat	atc	atg	ctg	432
Glu	Leu	Ala	Ile	Ile	His	Ala	Asp	Leu	Lys	Pro	Glu	Asn	Ile	Met	Leu	
		130				135					140					
gtg	gac	cag	acc	cgc	tgc	ccc	ttc	agg	gtc	aag	gtg	att	gac	ttc	ggc	480
Val	Asp	Gln	Thr	Arg	Cys	Pro	Phe	Arg	Val	Lys	Val	Ile	Asp	Phe	Gly	
					150					155					160	
tct	gcc	agc	att	ttc	agc	gag	gtg	cgc	tac	gtg	aag	gag	cca	tac	atc	528
Ser	Ala	Ser	Ile	Phe	Ser	Glu	Val	Arg	Tyr	Val	Lys	Glu	Pro	Tyr	Ile	
				165					170					175		
cag	tcg	cgc	ttc	tac	cgg	gcc	ccc	gag	atc	ctg	ctg	ggg	ctg	ccc	ttc	576
Gln	Ser	Arg	Phe	Tyr	Arg	Ala	Pro	Glu	Ile	Leu	Leu	Gly	Leu	Pro	Phe	
			180					185					190			
tgc	gag	aag	gtg	gac	gtg	tgg	tcc	ctg	ggc	tgt	gtc	atg	gct	gag	ctg	624
Cys	Glu	Lys	Val	Asp	Val	Trp	Ser	Leu	Gly	Cys	Val	Met	Ala	Glu	Leu	
		195					200					205				
cac	ctg	ggc	tgg	ccc	ctc	tac	ccc	ggc	aat	aac	gag	tac	gac	cag	gtg	672
His	Leu	Gly	Trp	Pro	Leu	Tyr	Pro	Gly	Asn	Asn	Glu	Tyr	Asp	Gln	Val	
		210				215					220					
cgc	tac	atc	tgc	gaa	acc	cag	ggc	ctc	ccc	aag	ccg	cac	ctg	ctg	cac	720
Arg	Tyr	Ile	Cys	Glu	Thr	Gln	Gly	Leu	Pro	Lys	Pro	His	Leu	Leu	His	
					230					235					240	
gcc	gcc	cgc	aag	gcc	cac	cac	ttc	ttt	aag	cgc	aac	ccc	cac	cct	gac	768
Ala	Ala	Arg	Lys	Ala	His	His	Phe	Phe	Lys	Arg	Asn	Pro	His	Pro	Asp	
				245					250					255		
gcc	gcc	aac	ccc	tgg	cag	ctc	aag	tcc	tcg	gct	gac	tac	ctg	gcc	gag	816
Ala	Ala	Asn	Pro	Trp	Gln	Leu	Lys	Ser	Ser	Ala	Asp	Tyr	Leu	Ala	Glu	
			260					265					270			

01997001800.ST25

acg Thr	aag Lys	gtg Val 275	cgc Arg	cca Pro	ctg Leu	gag Glu	cgc Arg 280	cgc Arg	aag Lys	tat Tyr	atg Met	ctt Leu 285	aag Lys	tcc Ser	ttg Leu	864
gac Asp	cag Gln 290	atc Ile	gag Glu	aca Thr	gtg Val	aat Asn 295	ggt Gly	ggc Gly	agt Ser	gtg Val	gcc Ala 300	agt Ser	cgg Arg	ctg Leu	acc Thr	912
ttc Phe 305	ccc Pro	gac Asp	cgg Arg	gag Glu	gca Ala 310	ctg Leu	gca Ala	gag Glu	cac His	gcc Ala 315	gac Asp	ctc Leu	aag Lys	agc Ser	atg Met 320	960
gtg Val	gag Glu	ctg Leu	atc Ile	aaa Lys 325	cgc Arg	atg Met	ctg Leu	acc Thr	tgg Trp 330	gaa Glu	tca Ser	cat His	gaa Glu	cgc Arg 335	atc Ile	1008
agc Ser	ccc Pro	agt Ser	gct Ala 340	gcc Ala	ctg Leu	cgc Arg	cac His	ccc Pro 345	ttc Phe	gtg Val	tcc Ser	atg Met	cag Gln 350	cag Gln	ctg Leu	1056
cgc Arg	aat Asn	gcc Ala 355	cac His	gag Glu	acc Thr	acc Thr	cac His 360	tac Tyr	tac Tyr	cag Gln	ctc Leu	tcg Ser 365	ctg Leu	cgc Arg	agc Ser	1104
tac Tyr	cgc Arg 370	ctc Leu	tcg Ser	ctg Leu	cag Gln	gtg Val 375	gag Glu	ggc Gly	aag Lys	ccc Pro	ccc Pro 380	gcg Ala	cct Pro	gtc Val	gtg Val	1152
gct Ala 385	gca Ala	gaa Glu	gat Asp	ggg Gly	acc Thr 390	ccc Pro	tac Tyr	tac Tyr	cgt Arg	ctg Leu 395	gct Ala	gag Glu	gag Glu	aag Lys	gag Glu 400	1200
gct Ala	gcg Ala	ggc Gly	atg Met	ggc Gly 405	agt Ser	gtg Val	gcc Ala	agc Ser	agc Ser 410	agc Ser	ccc Pro	ttc Phe	ttc Phe	cga Arg 415	gag Glu	1248
gag Glu	aag Lys	gca Ala	cca Pro 420	ggt Gly	atg Met	caa Gln	aga Arg	gcc Ala 425	atc Ile	gac Asp	cag Gln	ctg Leu	gac Asp 430	gac Asp	ctg Leu	1296
agt Ser	ctg Leu	cag Gln 435	gag Glu	gct Ala	ggg Gly	cat His	ggg Gly 440	ctg Leu	tgg Trp	ggt Gly	gag Glu	acc Thr 445	tgc Cys	acc Thr	gat Asp	1344
gtg Val	gtc Val 450	tcc Ser	gac Asp	atg Met	atg Met	gcc Ala 455	ccc Pro	ctc Leu	aag Lys	gca Ala	gcc Ala 460	atc Ile	act Thr	ggc Gly	cgc Arg	1392
cac His 465	atg Met	ccc Pro	gac Asp	tca Ser	ggc Gly 470	ccc Pro	gag Glu	ccc Pro	atc Ile	ctg Leu 475	gcc Ala	ttc Phe	tat Tyr	agc Ser	agc Ser 480	1440
cgc Arg	ctg Leu	gca Ala	ggc Gly	cgc Arg 485	cac His	aag Lys	gcc Ala	cgc Arg	aag Lys 490	cca Pro	cct Pro	gcg Ala	ggt Gly	tcc Ser 495	aaa Lys	1488
tcc Ser	gac Asp	tcc Ser	aac Asn 500	ctc Leu	agc Ser	aac Asn	ctc Leu	atc Ile 505	cgg Arg	ctg Leu	agc Ser	cag Gln	gtc Val 510	tcg Ser	cct Pro	1536
gag Glu	gat Asp	gac Asp 515	agg Arg	ccc Pro	tgc Cys	cgg Arg	ggc Gly 520	agc Ser	agc Ser	tgg Trp	gag Glu	gaa Glu 525	gga Gly	gag Glu	cat His	1584

01997001800.ST25

ctc ggg gcc tct gct gag cca ccg gcc atc ctg cag cga gat ggg gat Leu Gly Ala Ser Ala Glu Pro Pro Ala Ile Leu Gln Arg Asp Gly Asp 530 535 540	1632
ggg ccc aac att gac aac atg acc atg gag gct gag agg cca gac cct Gly Pro Asn Ile Asp Asn Met Thr Met Glu Ala Glu Arg Pro Asp Pro 545 550 555 560	1680
gag ctc ttc gac ccc agc agc tgt ccc gga gaa tgg ctg agt gag cca Glu Leu Phe Asp Pro Ser Ser Cys Pro Gly Glu Trp Leu Ser Glu Pro 565 570 575	1728
gac tgg acc ctg gag ggc gtc agg ggc cca cgg gct cag ggg ctc cca Asp Trp Thr Leu Glu Gly Val Arg Gly Pro Arg Ala Gln Gly Leu Pro 580 585 590	1776
ccc cgc cgc tcc cac cag cat ggt ccg ccc cgg ggg gcc acc agt ttc Pro Arg Arg Ser His Gln His Gly Pro Pro Arg Gly Ala Thr Ser Phe 595 600 605	1824
ctc cag cat gtc acc ggg cac cac tga Leu Gln His Val Thr Gly His His 610 615	1851

<210> 8
 <211> 616
 <212> PRT
 <213> Macaca fascicularis

<400> 8

Met Ala Thr Thr Gln Ser Glu Thr Asp Cys Tyr Asp Ile Ile Glu Val 1 5 10 15
Leu Gly Lys Gly Thr Phe Gly Glu Val Ala Lys Gly Trp Arg Arg Ser 20 25 30
Thr Gly Glu Met Val Ala Ile Lys Ile Leu Lys Asn Asp Ala Tyr Arg 35 40 45
Asn Arg Ile Ile Lys Asn Glu Leu Lys Leu Leu His Cys Met Arg Gly 50 55 60
Leu Asp Pro Glu Glu Ala His Val Ile Arg Phe Leu Glu Phe Phe His 65 70 75 80
Asp Ala Leu Lys Phe Tyr Leu Val Phe Glu Leu Leu Glu Gln Asn Leu 85 90 95
Phe Glu Phe Gln Lys Glu Asn Asn Phe Ala Pro Leu Pro Ala Arg His 100 105 110
Ile Arg Thr Val Thr Leu Gln Val Leu Arg Ala Leu Ala Arg Leu Lys 115 120 125

01997001800.ST25

Glu Leu Ala Ile Ile His Ala Asp Leu Lys Pro Glu Asn Ile Met Leu
 130 135 140
 Val Asp Gln Thr Arg Cys Pro Phe Arg Val Lys Val Ile Asp Phe Gly
 145 150 155 160
 Ser Ala Ser Ile Phe Ser Glu Val Arg Tyr Val Lys Glu Pro Tyr Ile
 165 170 175
 Gln Ser Arg Phe Tyr Arg Ala Pro Glu Ile Leu Leu Gly Leu Pro Phe
 180 185 190
 Cys Glu Lys Val Asp Val Trp Ser Leu Gly Cys Val Met Ala Glu Leu
 195 200 205
 His Leu Gly Trp Pro Leu Tyr Pro Gly Asn Asn Glu Tyr Asp Gln Val
 210 215 220
 Arg Tyr Ile Cys Glu Thr Gln Gly Leu Pro Lys Pro His Leu Leu His
 225 230 235 240
 Ala Ala Arg Lys Ala His His Phe Phe Lys Arg Asn Pro His Pro Asp
 245 250 255
 Ala Ala Asn Pro Trp Gln Leu Lys Ser Ser Ala Asp Tyr Leu Ala Glu
 260 265 270
 Thr Lys Val Arg Pro Leu Glu Arg Arg Lys Tyr Met Leu Lys Ser Leu
 275 280 285
 Asp Gln Ile Glu Thr Val Asn Gly Gly Ser Val Ala Ser Arg Leu Thr
 290 295 300
 Phe Pro Asp Arg Glu Ala Leu Ala Glu His Ala Asp Leu Lys Ser Met
 305 310 315 320
 Val Glu Leu Ile Lys Arg Met Leu Thr Trp Glu Ser His Glu Arg Ile
 325 330 335
 Ser Pro Ser Ala Ala Leu Arg His Pro Phe Val Ser Met Gln Gln Leu
 340 345 350
 Arg Asn Ala His Glu Thr Thr His Tyr Tyr Gln Leu Ser Leu Arg Ser
 355 360 365
 Tyr Arg Leu Ser Leu Gln Val Glu Gly Lys Pro Pro Ala Pro Val Val

01997001800.ST25

370

375

380

Ala Ala Glu Asp Gly Thr Pro Tyr Tyr Arg Leu Ala Glu Glu Lys Glu
385 390 395 400

Ala Ala Gly Met Gly Ser Val Ala Ser Ser Ser Pro Phe Phe Arg Glu
405 410 415

Glu Lys Ala Pro Gly Met Gln Arg Ala Ile Asp Gln Leu Asp Asp Leu
420 425 430

Ser Leu Gln Glu Ala Gly His Gly Leu Trp Gly Glu Thr Cys Thr Asp
435 440 445

Val Val Ser Asp Met Met Ala Pro Leu Lys Ala Ala Ile Thr Gly Arg
450 455 460

His Met Pro Asp Ser Gly Pro Glu Pro Ile Leu Ala Phe Tyr Ser Ser
465 470 475 480

Arg Leu Ala Gly Arg His Lys Ala Arg Lys Pro Pro Ala Gly Ser Lys
485 490 495

Ser Asp Ser Asn Leu Ser Asn Leu Ile Arg Leu Ser Gln Val Ser Pro
500 505 510

Glu Asp Asp Arg Pro Cys Arg Gly Ser Ser Trp Glu Glu Gly Glu His
515 520 525

Leu Gly Ala Ser Ala Glu Pro Pro Ala Ile Leu Gln Arg Asp Gly Asp
530 535 540

Gly Pro Asn Ile Asp Asn Met Thr Met Glu Ala Glu Arg Pro Asp Pro
545 550 555 560

Glu Leu Phe Asp Pro Ser Ser Cys Pro Gly Glu Trp Leu Ser Glu Pro
565 570 575

Asp Trp Thr Leu Glu Gly Val Arg Gly Pro Arg Ala Gln Gly Leu Pro
580 585 590

Pro Arg Arg Ser His Gln His Gly Pro Pro Arg Gly Ala Thr Ser Phe
595 600 605

Leu Gln His Val Thr Gly His His
610 615

01997001800.ST25

<210> 9
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 9
 aaccgcatca tcaagaacga g 21

<210> 10
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 10
 gtcaggaag gttagccgac t 21

<210> 11
 <211> 23
 <212> DNA
 <213> Homo sapiens

<400> 11
 agacgaagg tgcgccattg gag 23

<210> 12
 <211> 23
 <212> DNA
 <213> Homo sapiens

<400> 12
 ctggcggatc cgaagtcaat cac 23

<210> 13
 <211> 521
 <212> DNA
 <213> Homo sapiens

<400> 13
 acgagaccac ccactactac cagctctcgc tgcgcagcta ccgcctctcg ctgcaagtgg 60
 aggggaagcc cccacgccc gtcgtggccg cagaagatgg gacccctac tactgtctgg 120
 ctgaggagaa ggaggctgcg ggtatgggca gtgtggccg cagcagcccc ttcttccgag 180
 aggagaaggc accaggtatg caaagagcca tcgaccagct ggatgacctg agtctgcagg 240
 aggctgggca tgggctgtgg ggtgagacct gcaccaatgc ggtctccgac atgatgggcc 300
 ccctcaaggc agccatcact ggccaccatg tgcccgactc gggccctgag cccatcctgg 360
 ccttctacag cagccgcctg gcaggccgcc acaaggcccg caagccacct gcgggttcca 420
 agtccgactc caacttcagc aacctcattc ggctgagcca ggtctcgcct gaggatgaca 480
 ggccctgccg gggcagcagc tgggaggaag gagagcatct c 521

<210> 14
 <211> 20

01997001800.ST25

<212> DNA
 <213> Homo sapiens

<400> 14
 acgagaccac ccactactac 20

<210> 15
 <211> 20
 <212> DNA
 <213> Homo sapiens

<400> 15
 gagatgctct ccttcctccc 20

<210> 16
 <211> 1851
 <212> DNA
 <213> Rattus norvegicus

<220>
 <221> CDS
 <222> (1)..(1848)

<400> 16
 atg gcc acc atc cag tca gag act gac tgt tac gac atc att gaa gtc 48
 Met Ala Thr Ile Gln Ser Glu Thr Asp Cys Tyr Asp Ile Ile Glu Val
 1 5 10 15

ctg ggc aag ggc act ttt gga gag gtg gcc aag ggc tgg cgt cgg agt 96
 Leu Gly Lys Gly Thr Phe Gly Glu Val Ala Lys Gly Trp Arg Arg Ser
 20 25 30

aca gga gaa atg gtg gcc atc aag atc ttg aag aac gac gcg tac cga 144
 Thr Gly Glu Met Val Ala Ile Lys Ile Leu Lys Asn Asp Ala Tyr Arg
 35 40 45

agc cgt atc atc aag aat gag ttg aag ctg ctg cgc tgt gta cga ggc 192
 Ser Arg Ile Ile Lys Asn Glu Leu Lys Leu Leu Arg Cys Val Arg Gly
 50 55 60

ctg gac ccc gac gag gcc cac gtc atc cgc ttc ctt gaa ttc ttc cat 240
 Leu Asp Pro Asp Glu Ala His Val Ile Arg Phe Leu Glu Phe Phe His
 65 70 75 80

gat gcc ctc aag ttc tac ctg gtc ttt gag cta ttg gag caa aac ctc 288
 Asp Ala Leu Lys Phe Tyr Leu Val Phe Glu Leu Leu Glu Gln Asn Leu
 85 90 95

ttt gag ttc cag aaa gag aac aac ttc gca ccc ctc cct gcc agg cac 336
 Phe Glu Phe Gln Lys Glu Asn Asn Phe Ala Pro Leu Pro Ala Arg His
 100 105 110

atc cga act gtc aca ctg cag gtc cta aga gcg ctg gcc cgg ctc aag 384
 Ile Arg Thr Val Thr Leu Gln Val Leu Arg Ala Leu Ala Arg Leu Lys
 115 120 125

gag ttg gct atc atc cat gct gac ctc aag cca gaa aac att atg ttg 432
 Glu Leu Ala Ile Ile His Ala Asp Leu Lys Pro Glu Asn Ile Met Leu
 130 135 140

01997001800.ST25

gta Val 145	gat Asp	cag Gln	acc Thr	cgc Arg	tgc Cys 150	ccc Pro	ttc Phe	agg Arg	gta Val	aag Lys 155	gtg Val	atc Ile	gac Asp	ttt Phe	ggc Gly 160	480
tcg Ser	gcc Ala	agc Ser	ata Ile	ttc Phe 165	agt Ser	gag Glu	gtg Val	cgc Arg	tat Tyr 170	gtg Val	aag Lys	gag Glu	cct Pro	tac Tyr 175	atc Ile	528
cag Gln	tcc Ser	cgc Arg	ttc Phe 180	tac Tyr	agg Arg	gcc Ala	cca Pro	gag Glu 185	atc Ile	ctg Leu	ttg Leu	ggg Gly	ttg Leu 190	ccg Pro	ttc Phe	576
tgc Cys	gag Glu	aag Lys 195	gtg Val	gac Asp	gtg Val	tgg Trp	tct Ser 200	ctg Leu	ggc Gly	tgt Cys	gtc Val	atg Met 205	gct Ala	gag Glu	tta Leu	624
cac His 210	ctg Leu	ggc Gly	tgg Trp	cct Pro	ctc Leu	tac Tyr 215	cca Pro	ggc Gly	aac Asn	aat Asn	gag Glu 220	tat Tyr	gac Asp	cag Gln	gtg Val	672
cgc Arg 225	tac Tyr	atc Ile	tgt Cys	gag Glu	acc Thr 230	cag Gln	ggc Gly	tta Leu	ccc Pro	aag Lys 235	ccc Pro	cat His	ctg Leu	ctg Leu	cat His 240	720
gcg Ala	gcc Ala	cgc Arg	aag Lys	gct Ala 245	cac His	cac His	ttc Phe	ttc Phe	aag Lys 250	cgt Arg	aac Asn	ccc Pro	cac His	ccc Pro 255	gat Asp	768
gcc Ala	acc Thr	aac Asn	ccc Pro 260	tgg Trp	cag Gln	ctc Leu	aag Lys	tcc Ser 265	tct Ser	gct Ala	gac Asp	tac Tyr	cta Leu 270	gct Ala	gag Glu	816
acc Thr	aag Lys	gta Val 275	cgc Arg	cca Pro	ctg Leu	gag Glu	cgc Arg 280	cgc Arg	aag Lys	tac Tyr	atg Met	ctc Leu 285	aaa Lys	tcc Ser	ttg Leu	864
gac Asp 290	caa Gln	att Ile	gag Glu	acg Thr	gtg Val	aat Asn 295	ggt Gly	ggc Gly	ggc Gly	gct Ala	gtg Val 300	aat Asn	cgg Arg	ttg Leu	agt Ser	912
ttt Phe 305	cca Pro	gac Asp	cgg Arg	gag Glu	gca Ala 310	ctg Leu	gcg Ala	gaa Glu	cac His	gcg Ala 315	gac Asp	ctc Leu	aag Lys	agc Ser	atg Met 320	960
gtg Val	gag Glu	ctg Leu	atc Ile	aaa Lys 325	cgc Arg	atg Met	ctg Leu	aca Thr	tgg Trp 330	gag Glu	tct Ser	cac His	gag Glu	cgc Arg 335	atc Ile	1008
agt Ser	ccc Pro	agc Ser	gcg Ala 340	gcc Ala	ctg Leu	cgc Arg	cac His	ccc Pro 345	ttc Phe	gtg Val	tcc Ser	atg Met	cag Gln 350	cag Gln	ctg Leu	1056
cgt Arg	agt Ser	gcc Ala 355	cac His	gag Glu	gcc Ala	acc Thr	cgc Arg 360	tac Tyr	tac Tyr	cag Gln	ctg Leu	tcc Ser 365	ctc Leu	cga Arg	ggc Gly	1104
tgt Cys 370	cgg Arg	ctg Leu	tcc Ser	ctg Leu	cag Gln	gtg Val 375	gac Asp	ggc Gly	aag Lys	cca Pro	ccc Pro 380	cca Pro	cct Pro	gtc Val	ata Ile	1152
gcc Ala 385	aac Asn	gca Ala	gag Glu	gac Asp	ggg Gly 390	cct Pro	ccc Pro	tac Tyr	tac Tyr	cgc Arg 395	ctg Leu	gct Ala	gag Glu	gag Glu	gag Glu 400	1200

01997001800.ST25

gag Glu	act Thr	gca Ala	ggc Gly	ctg Leu 405	ggt Gly	ggt Gly	gtg Val	acc Thr	ggc Gly 410	agt Ser	ggg Gly	tcc Ser	ttc Phe 415	ttc Phe	agg Arg	1248
gag Glu	gac Asp	aag Lys	gct Ala 420	ccc Pro	gga Gly	atg Met	cag Gln	aga Arg 425	gcc Ala	atc Ile	gac Asp	cag Gln	ctc Leu 430	gat Asp	gac Asp	1296
ctg Leu	agt Ser	ctg Leu 435	cag Gln	gag Glu	gcc Ala	cgc Arg	cgg Arg 440	ggg Gly	ctg Leu	tgg Trp	agc Ser	gac Asp 445	acg Thr	cgg Arg	gcc Ala	1344
gac Asp	atg Met 450	gtc Val	tct Ser	gac Asp	atg Met	ctg Leu 455	gct Ala	cca Pro	ctc Leu	aaa Lys	gta Val 460	gcc Ala	act Thr	acc Thr	agc Ser	1392
cat His 465	cga Arg	gtc Val	ccc Pro	gac Asp	tcg Ser 470	ggc Gly	ccg Pro	gag Glu	cct Pro	atc Ile 475	ctg Leu	gcc Ala	ttc Phe	tac Tyr	ggc Gly 480	1440
agc Ser	cgc Arg	ttg Leu	act Thr	ggc Gly 485	cgc Arg	cat His	aag Lys	gcc Ala 490	cgc Arg	aag Lys	gcc Ala	cca Pro	gca Ala	ggc Gly 495	tcc Ser	1488
aaa Lys	tcc Ser	gac Asp	tcc Ser 500	aac Asn	ttc Phe	agt Ser	aac Asn	ctc Leu 505	atc Ile	cgg Arg	ctg Leu	agc Ser	cag Gln 510	gcc Ala	tca Ser	1536
cct Pro	gag Glu	gat Asp 515	gcg Ala	ggg Gly	tcc Ser	tgt Cys	agg Arg 520	ggc Gly	agt Ser	ggt Gly	tgg Trp	gaa Glu 525	gaa Glu	gga Gly	gaa Glu	1584
ggc Gly 530	cac His	acg Thr	act Thr	tcc Ser	aca Thr	gag Glu 535	ccg Pro	tct Ser	gcc Ala	atc Ile	cca Pro 540	caa Gln	cgg Arg	gaa Glu	gga Gly	1632
gat Asp 545	gga Gly	ccc Pro	agc Ser	atc Ile	aaa Lys 550	gac Asp	agg Arg	ccc Pro	atg Met	gat Asp 555	gct Ala	gag Glu	agg Arg	tca Ser	ggc Gly 560	1680
cct Pro	gag Glu	ctc Leu	ttt Phe	gat Asp 565	ccc Pro	agc Ser	ggc Gly	tgt Cys	cct Pro 570	gga Gly	gag Glu	tgg Trp	cta Leu	aat Asn 575	gaa Glu	1728
cca Pro	gaa Glu	tgg Trp	acc Thr 580	cta Leu	gag Glu	ggc Gly	atc Ile	cgg Arg 585	ggg Gly	tct Ser	cga Arg	gct Ala	caa Gln 590	ggg Gly	ctt Leu	1776
cca Pro	gct Ala	cgc Arg 595	cat His	ccc Pro	cac His	cca Pro	cac His 600	ggg Gly	ccg Pro	ccc Pro	agg Arg	acc Thr 605	acc Thr	agc Ser	ttt Phe	1824
ctg Leu	cag Gln 610	cat His	gtt Val	gga Gly	ggg Gly	cac His 615	cac His	tga								1851

<210> 17
 <211> 616
 <212> PRT
 <213> Rattus norvegicus

<400> 17

Met Ala Thr Ile Gln Ser Glu Thr Asp Cys Tyr Asp Ile Ile Glu Val
 1 5 10 15
 Leu Gly Lys Gly Thr Phe Gly Glu Val Ala Lys Gly Trp Arg Arg Ser
 20 25 30
 Thr Gly Glu Met Val Ala Ile Lys Ile Leu Lys Asn Asp Ala Tyr Arg
 35 40 45
 Ser Arg Ile Ile Lys Asn Glu Leu Lys Leu Leu Arg Cys Val Arg Gly
 50 55 60
 Leu Asp Pro Asp Glu Ala His Val Ile Arg Phe Leu Glu Phe Phe His
 65 70 75 80
 Asp Ala Leu Lys Phe Tyr Leu Val Phe Glu Leu Leu Glu Gln Asn Leu
 85 90 95
 Phe Glu Phe Gln Lys Glu Asn Asn Phe Ala Pro Leu Pro Ala Arg His
 100 105 110
 Ile Arg Thr Val Thr Leu Gln Val Leu Arg Ala Leu Ala Arg Leu Lys
 115 120 125
 Glu Leu Ala Ile Ile His Ala Asp Leu Lys Pro Glu Asn Ile Met Leu
 130 135 140
 Val Asp Gln Thr Arg Cys Pro Phe Arg Val Lys Val Ile Asp Phe Gly
 145 150 155 160
 Ser Ala Ser Ile Phe Ser Glu Val Arg Tyr Val Lys Glu Pro Tyr Ile
 165 170 175
 Gln Ser Arg Phe Tyr Arg Ala Pro Glu Ile Leu Leu Gly Leu Pro Phe
 180 185 190
 Cys Glu Lys Val Asp Val Trp Ser Leu Gly Cys Val Met Ala Glu Leu
 195 200 205
 His Leu Gly Trp Pro Leu Tyr Pro Gly Asn Asn Glu Tyr Asp Gln Val
 210 215 220
 Arg Tyr Ile Cys Glu Thr Gln Gly Leu Pro Lys Pro His Leu Leu His
 225 230 235 240
 Ala Ala Arg Lys Ala His His Phe Phe Lys Arg Asn Pro His Pro Asp
 Page 35

245

250

255

Ala Thr Asn Pro Trp Gln Leu Lys Ser Ser Ala Asp Tyr Leu Ala Glu
260 265 270

Thr Lys Val Arg Pro Leu Glu Arg Arg Lys Tyr Met Leu Lys Ser Leu
275 280 285

Asp Gln Ile Glu Thr Val Asn Gly Gly Gly Ala Val Asn Arg Leu Ser
290 295 300

Phe Pro Asp Arg Glu Ala Leu Ala Glu His Ala Asp Leu Lys Ser Met
305 310 315 320

Val Glu Leu Ile Lys Arg Met Leu Thr Trp Glu Ser His Glu Arg Ile
325 330 335

Ser Pro Ser Ala Ala Leu Arg His Pro Phe Val Ser Met Gln Gln Leu
340 345 350

Arg Ser Ala His Glu Ala Thr Arg Tyr Tyr Gln Leu Ser Leu Arg Gly
355 360 365

Cys Arg Leu Ser Leu Gln Val Asp Gly Lys Pro Pro Pro Pro Val Ile
370 375 380

Ala Asn Ala Glu Asp Gly Pro Pro Tyr Tyr Arg Leu Ala Glu Glu Glu
385 390 395 400

Glu Thr Ala Gly Leu Gly Gly Val Thr Gly Ser Gly Ser Phe Phe Arg
405 410 415

Glu Asp Lys Ala Pro Gly Met Gln Arg Ala Ile Asp Gln Leu Asp Asp
420 425 430

Leu Ser Leu Gln Glu Ala Arg Arg Gly Leu Trp Ser Asp Thr Arg Ala
435 440 445

Asp Met Val Ser Asp Met Leu Ala Pro Leu Lys Val Ala Thr Thr Ser
450 455 460

His Arg Val Pro Asp Ser Gly Pro Glu Pro Ile Leu Ala Phe Tyr Gly
465 470 475 480

Ser Arg Leu Thr Gly Arg His Lys Ala Arg Lys Ala Pro Ala Gly Ser
485 490 495

01997001800.ST25

Lys Ser Asp Ser Asn Phe Ser Asn Leu Ile Arg Leu Ser Gln Ala Ser
500 505 510

Pro Glu Asp Ala Gly Ser Cys Arg Gly Ser Gly Trp Glu Glu Gly Glu
515 520 525

Gly His Thr Thr Ser Thr Glu Pro Ser Ala Ile Pro Gln Arg Glu Gly
530 535 540

Asp Gly Pro Ser Ile Lys Asp Arg Pro Met Asp Ala Glu Arg Ser Gly
545 550 555 560

Pro Glu Leu Phe Asp Pro Ser Gly Cys Pro Gly Glu Trp Leu Asn Glu
565 570 575

Pro Glu Trp Thr Leu Glu Gly Ile Arg Gly Ser Arg Ala Gln Gly Leu
580 585 590

Pro Ala Arg His Pro His Pro His Gly Pro Pro Arg Thr Thr Ser Phe
595 600 605

Leu Gln His Val Gly Gly His His
610 615

<210> 18
<211> 21
<212> DNA
<213> Homo sapiens

<400> 18
aagatcctca agaatgacgc c 21

<210> 19
<211> 21
<212> DNA
<213> Homo sapiens

<400> 19
aagaatgacg cctaccgcaa c 21

<210> 20
<211> 21
<212> DNA
<213> Homo sapiens

<400> 20
aaccgcatca tcaagaacga g 21

<210> 21
<211> 21
<212> DNA
<213> Homo sapiens

<400> 21 aagaacgagc tgaagctgct g	21
<210> 22 <211> 21 <212> DNA <213> Homo sapiens	
<400> 22 aaggagctgg ctatcatcca c	21
<210> 23 <211> 21 <212> DNA <213> Homo sapiens	
<400> 23 aagcctgaga acatcatgct g	21
<210> 24 <211> 21 <212> DNA <213> Homo sapiens	
<400> 24 aacatcatgc tggtggacca g	21
<210> 25 <211> 21 <212> DNA <213> Homo sapiens	
<400> 25 aaggtgattg acttcgcatc c	21
<210> 26 <211> 21 <212> DNA <213> Homo sapiens	
<400> 26 aaggagccat acatccagtc g	21
<210> 27 <211> 21 <212> DNA <213> Homo sapiens	
<400> 27 aacaacgagt acgaccaggt g	21
<210> 28 <211> 21 <212> DNA <213> Homo sapiens	

<400> 28 aagtcgttgg accagattga g	21
<210> 29 <211> 21 <212> DNA <213> Homo sapiens	
<400> 29 aagagcatgg tggagctgat c	21
<210> 30 <211> 21 <212> DNA <213> Homo sapiens	
<400> 30 aatgcggtct ccgacatgat g	21
<210> 31 <211> 21 <212> DNA <213> Homo sapiens	
<400> 31 aagtccgact ccaacttcag c	21
<210> 32 <211> 21 <212> DNA <213> Homo sapiens	
<400> 32 aacttcagca acctcattcg g	21
<210> 33 <211> 21 <212> DNA <213> Homo sapiens	
<400> 33 aacatgacca tggaagctga g	21
<210> 34 <211> 21 <212> DNA <213> Homo sapiens	
<400> 34 aatggctgag tgagccagac t	21
<210> 35 <211> 21 <212> RNA <213> Artificial	

<220>
 <223> siRNA polynucleotide, synthesized

 <400> 35
 gauccucaag aaugacgccu u 21

 <210> 36
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 36
 gaaugacgcc uaccgcaacu u 21

 <210> 37
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 37
 ccgcaucauc aagaacgagu u 21

 <210> 38
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 38
 gaacgagcug aagcugcugu u 21

 <210> 39
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 39
 ggagcuggcu aucauccacu u 21

 <210> 40
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

<400> 40
gccugagaac aucaugcugu u 21

<210> 41
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 41
caucaugcug guggaccagu u 21

<210> 42
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 42
ggugauugac uucggauccu u 21

<210> 43
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 43
ggagccauac auccagucgu u 21

<210> 44
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 44
caacgaguac gaccaggugu u 21

<210> 45
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 45
gucguuggac cagauugagu u 21

<210> 46
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 46
 gagcauggug gagcugaucu u 21

<210> 47
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 47
 ugcggucucc gacaugaugu u 21

<210> 48
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 48
 guccgacucc aacuucagcu u 21

<210> 49
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 49
 cuucagcaac cucauucggu u 21

<210> 50
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 50
 caugaccaug gaagcugagu u 21

<210> 51

<211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 51
 uggcugagug agccagacuu u 21

<210> 52
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 52
 uucuaggagu ucuuacugcg g 21

<210> 53
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 53
 uucuacugc ggaugcgguu g 21

<210> 54
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 54
 uuggcguagu aguucuugcu c 21

<210> 55
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 55
 uucuugcugc acuucgacga c 21

<210> 56
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized
 <400> 56
 uuccucgacc gauaguaggu g 21
 <210> 57
 <211> 21
 <212> RNA
 <213> Artificial
 <220>
 <223> siRNA polynucleotide, synthesized
 <400> 57
 uucggacucu uguaguacga c 21
 <210> 58
 <211> 21
 <212> RNA
 <213> Artificial
 <220>
 <223> siRNA polynucleotide, synthesized
 <400> 58
 uuguaguacg accaccuggu c 21
 <210> 59
 <211> 21
 <212> RNA
 <213> Artificial
 <220>
 <223> siRNA polynucleotide, synthesized
 <400> 59
 uuccacuaac ugaagccuag g 21
 <210> 60
 <211> 21
 <212> RNA
 <213> Artificial
 <220>
 <223> siRNA polynucleotide, synthesized
 <400> 60
 uuccucggua uguaggucag c 21
 <210> 61
 <211> 21
 <212> RNA
 <213> Artificial
 <220>
 <223> siRNA polynucleotide, synthesized

<400> 61
uuguugcuca ugcuggucca c 21

<210> 62
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 62
uucagcaacc uggucuaacu c 21

<210> 63
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 63
uucucguacc accucgacua g 21

<210> 64
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 64
uuacgccaga ggcuguacua c 21

<210> 65
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 65
uucaggcuga gguugaaguc g 21

<210> 66
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 66
uugaagucgu uggaguaagc c 21

<210> 67
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 67
 uuguacuggu accuucgacu c 21

<210> 68
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 68
 uuaccgacuc acucggucug a 21

<210> 69
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 69
 caagatcctc aagaatgacg c 21

<210> 70
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 70
 caagaatgac gcctaccgca a 21

<210> 71
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 71
 caaccgcatc atcaagaacg a 21

<210> 72
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 72
 catcaagaac gagctgaagc t 21

<210> 73

<211> 21
 <212> DNA
 <213> Homo sapiens

<400> 73
 caagaacgag ctgaagctgc t 21

<210> 74
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 74
 catccgcttc cttgagttct t 21

<210> 75
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 75
 cagaaggaga acaacttcgc g 21

<210> 76
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 76
 caaggagctg gctatcatcc a 21

<210> 77
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 77
 caagcctgag aacatcatgc t 21

<210> 78
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 78
 caaggtgatt gacttcggat c 21

<210> 79
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 79
 catacatcca gtcgcgcttc t 21

<210> 80

<211> 21
 <212> DNA
 <213> Homo sapiens

<400> 80
 caacaacgag tacgaccagg t 21

<210> 81
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 81
 caccacttct tcaagcgcaa c 21

<210> 82
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 82
 caagtcgttg gaccagattg a 21

<210> 83
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 83
 caagagcatg gtggagctga t 21

<210> 84
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 84
 caatgcggtc tccgacatga t 21

<210> 85
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 85
 caagtccgac tccaacttca g 21

<210> 86
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 86
 caacttcagc aacctcattc g 21

<210> 87

<211> 21
 <212> DNA
 <213> Homo sapiens

<400> 87
 caacatgacc atggaagctg a 21

<210> 88
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 88
 catgaccatg gaagctgaga g 21

<210> 89
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 89
 agauccucaa gaaugacgcu u 21

<210> 90
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 90
 agaaugacgc cuaccgcaau u 21

<210> 91
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 91
 accgcaucau caagaacgau u 21

<210> 92
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 92
 ucaagaacga gcugaagcuu u 21

<210> 93
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 93
 agaacgagcu gaagcugcuu u 21

<210> 94
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 94
 uccgcuuccu ugaguucuuu u 21

<210> 95
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 95
 gaaggagaac aacuucgcu u 21

<210> 96
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 96
 aggagcuggc uaucauccau u 21

<210> 97
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 97
 agccugagaa caucaugcuu u 21

<210> 98

<211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 98
 aggugauuga cuucggaucu u 21

<210> 99
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 99
 uacauccagu cgcgcuucuu u 21

<210> 100
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 100
 acaacgagua cgaccagguu u 21

<210> 101
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 101
 ccacuucuuc aagcgcaacu u 21

<210> 102
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 102
 agucguugga ccagauugau u 21

<210> 103
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized
 <400> 103
 agagcauggu ggagcugauu u 21

<210> 104
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized
 <400> 104
 augcggucuc cgacugauu u 21

<210> 105
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized
 <400> 105
 aguccgacuc caacuucagu u 21

<210> 106
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized
 <400> 106
 acuucagcaa ccuauucgu u 21

<210> 107
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized
 <400> 107
 acaugaccu ggaagcugau u 21

<210> 108
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 108
ugaccaugga agcugagagu u 21

<210> 109
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 109
uuucuaggag uucuuacugc g 21

<210> 110
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 110
uuucuacug cggauggcgu u 21

<210> 111
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 111
uuuggcguag uaguucuugc u 21

<210> 112
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 112
uuaguucuug cucgacuucg a 21

<210> 113
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 113
uuucuugcuc gacuucgacg a 21

<210> 114
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 114
 uuaggcgaag gaacucaaga a 21

<210> 115
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 115
 uucuuccucu uguugaagcg c 21

<210> 116
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 116
 uuuccucgac cgauaguagg u 21

<210> 117
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 117
 uuucggacuc uuguaguacg a 21

<210> 118
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 118
 uuuccacuaa cugaagccua g 21

<210> 119

<211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 119
 uuauguaggu cagcgcgaag a 21

<210> 120
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 120
 uuuguugcuc augcuggucc a 21

<210> 121
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 121
 uuggugaaga aguucgcguu g 21

<210> 122
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 122
 uuucagcaac cuggucuaac u 21

<210> 123
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 123
 uuucucguac caccucgacu a 21

<210> 124
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

 <400> 124
 uuuacgccag aggcuguacu a 21

 <210> 125
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 125
 uuucaggcug agguugaagu c 21

 <210> 126
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 126
 uuugaagucg uuggaguaag c 21

 <210> 127
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 127
 uuuguacugg uaccuucgac u 21

 <210> 128
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 128
 uuacugguac cuucgacucu c 21

 <210> 129
 <211> 21
 <212> DNA
 <213> Homo sapiens

 <400> 129
 gagatggtgg ccatcaagat c 21

<210> 130
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 130
 gatggtggcc atcaagatcc t 21

<210> 131
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 131
 gatcctcaag aatgacgcct a 21

<210> 132
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 132
 gagttccaga aggagaacaa c 21

<210> 133
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 133
 gatctcaagc ctgagaacat c 21

<210> 134
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 134
 gagaacatca tgctggtgga c 21

<210> 135
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 135
 gaacatcatg ctggtggacc a 21

<210> 136
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 136
 gaaggagcca tacatccagt c 21

<210> 137
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 137
 gattgagaca gtgaatggtg g 21

<210> 138
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 138
 gagacagtga atggtggcag t 21

<210> 139
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 139
 gacagtgaat ggtggcagtg t 21

<210> 140
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 140
 gagcatggtg gagctgatca a 21

<210> 141
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 141
 gagaaggcac caggtatgca a 21

<210> 142
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 142
 gactccaact tcagcaacct c 21

<210> 143
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 143
 gacaacatga ccatggaagc t 21

<210> 144
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 144
 gaugguggcc aucaagaucu u 21

<210> 145
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 145
 ugguggccau caagaucuu u 21

<210> 146
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 146
 uccucaagaa ugacgccuau u 21

<210> 147
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 147
 guuccagaag gagaacaacu u 21

<210> 148
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 148
 ucucaagccu gagaacaucu u 21

<210> 149

<211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 149
 gaacaucaug cugguggacu u 21

<210> 150
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 150
 acaucaugcu gguggaccu u 21

<210> 151
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 151
 aggagccaua cauccagucu u 21

<210> 152
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 152
 uugagacagu gaaugguggu u 21

<210> 153
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 153
 gacagugaau gguggcaguu u 21

<210> 154
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized
 <400> 154
 cagugaagg uggcaguguu u 21

<210> 155
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized
 <400> 155
 gcauggugga gcugaucaau u 21

<210> 156
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized
 <400> 156
 gaaggcacca gguaugcaau u 21

<210> 157
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized
 <400> 157
 cuccaacuuc agcaaccucu u 21

<210> 158
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized
 <400> 158
 caacaugacc auggaagcuu u 21

<210> 159
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 159
uucuaccacc gguaguucua g 21

<210> 160
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 160
uuaccaccgg uaguucuagg a 21

<210> 161
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 161
uuaggaguuc uuacugcgga u 21

<210> 162
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 162
uucaaggucu uccucuuguu g 21

<210> 163
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 163
uuagaguucg gacucuugua g 21

<210> 164
<211> 21
<212> RNA
<213> Artificial

<220>
<223> siRNA polynucleotide, synthesized

<400> 164
uucuuguagu acgaccaccu g 21

<210> 165
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 165
 uuuguaguac gaccaccugg u 21

<210> 166
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 166
 uuuccucggu auguagguca g 21

<210> 167
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 167
 uuaacucugu cacuuaccac c 21

<210> 168
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 168
 uucugucacu uaccaccguc a 21

<210> 169
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 169
 uugucacuua ccaccgucac a 21

<210> 170

<211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 170
 uucguaccac cucgacuagu u 21

<210> 171
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 171
 uucuuccgug guccauacgu u 21

<210> 172
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 172
 uugagguuga agucguugga g 21

<210> 173
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 173
 uuguuguacu gguaccuucg a 21

<210> 174
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 174
 taccgcaacc gcatcatcaa g 21

<210> 175
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 175
 tacgtgaagg agccatacat c 21

<210> 176
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 176
 tacatccagt cgcgcttcta c 21

<210> 177
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 177
 tatgctcaag tcgttgacc a 21

<210> 178
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 178
 tactactgtc tggctgagga g 21

<210> 179
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 179
 tactgtctgg ctgaggagaa g 21

<210> 180
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 180
 ccgcaaccgc aucaucaagu u 21

<210> 181
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 181
 cgugaaggag ccuaucaucu u 21

<210> 182

<211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 182
 cauccagucg cgcuucuacu u 21

<210> 183
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 183
 ugcucaaguc guuggaccau u 21

<210> 184
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 184
 cuacugucug gcugaggagu u 21

<210> 185
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 185
 cugucuggcu gaggagaagu u 21

<210> 186
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

<400> 186
 uuggcguugg cguaguaguu c 21

<210> 187
 <211> 21
 <212> RNA
 <213> Artificial

<220>
 <223> siRNA polynucleotide, synthesized

 <400> 187
 uugcacuucc ucgguaugua g 21

 <210> 188
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 188
 uuguagguca gcgcgaagau g 21

 <210> 189
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 189
 uuacgaguuc agcaaccugg u 21

 <210> 190
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 190
 uugaugacag accgacuccu c 21

 <210> 191
 <211> 21
 <212> RNA
 <213> Artificial

 <220>
 <223> siRNA polynucleotide, synthesized

 <400> 191
 uugacagacc gacuccucu c 21